The Builder.

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The Royal Academy Exhibition.

THE Exhibition this year may be considered a good and interesting one, though it contains no great and dominant work which would be worth a visit for itself alone: indeed, if one were asked to name the best picture of the year, it would be difficult to make the selection; and that Mr. Abbey, among other Academicians, does not exhibit this year is a loss of at least one great possibility.

The largest work of the year is Mr. Herkomer's picture of the "Communal Sitting of the Burghers of Landsberg, Bavaria" (358); which, like another picture of the same type which he exhibited some years ago, is hung in Gallery VI. (occupying all one side of it) so as to face the entrance, and would give the same optical illusion as before, of the addition of a new room, but that the vista is intercepted by the large statue in the centre of the octagon hall. The picture represents with great force and reality the interior of the council chamber, with the opposite houses seen through the windows, and the Councillors seated in a row with their backs to the light, and a return row right and left at each end. The various portraits have much character and individuality; but after all, this is only a kind of official picture, more interesting to those for whom it was painted than to the general spectator. The fact of putting most of the figures with their backs to the light (apparently for the sake of getting the vista through the windows) has left the painter in the difficulty, in order to render his portraits distinctly, of being obliged to throw more light on the faces than there could really be in that position of lighting. There may be supposed to be windows opposite, of course; but nevertheless, a face seen against a window, with the light behind the head, must show darker than these do. The interior of the room is not of particular interest architecturally, and on the whole one can hardly say that the picture is worth its space at the Academy, though it will be a valuable possession for Landsberg.

The same cannot be said of the other large portrait picture, Mr. Sargent's "The Marlborough Family" (256). This is essentially a family picture to hang in a historic house, and it has the grand style suitable for such a painting, and is in itself a picture of great power of composition and colour, and one of the finest things certainly in the exhibition, though we do think the neck of the lady is rather Rossetti-ish in its length. The painter has taken advantage of the peerage robe to give breadth to the figure of the Duke. Whatever one may say of the "ideal" in art, the "real" painted in this way appeals more forcibly to our minds than the loftiest ideal treated with less mastery, as one must admit on looking at Mr. Dicksee's "The Ideal" (15) in the first room—"The passion that left the ground to lose itself in the sky." One may paint a nude red man (why is he so very red?) springing after a visionary phantom figure in the clouds, but our ideals are not much appealed to after all. It would make, however, a good decorative wall painting in a position not too near the eye: as an exhibition picture it fails because so much is claimed for it in the idea, to which it does not rise. Michælangelo alone, perhaps, could really paint such a subject in a way to compel our assent. However, it is an ambitious and well-meant attempt, and one should honour an artist who strives after the ideal, even if he does not quite succeed.

Sir L. Alma-Tadema knows his own powers exactly, and never attempts the ideal. His "Finding of Moses" (212) is a picture mainly of splendidly painted Egyptian archæological detail and admirably painted figures; but it is not only not ideal, it is hardly even human; there is not a touch of feeling in it. One might have thought that the daughter of Pharaoh would have shown something of motherly tenderness to the waif in the osier basket—"she had compassion on him," says the biblical narrative; but there is no such feeling evident on the part of this great lady carried aloft on her splendidly decorated litter, shaded by fans held by attendants, and turning her head with an amused smirk as she passes the basket and its burden. Her expression suggests nothing more than that it was an amusing incident on her way up from bathing. The picture is arranged in a processional form, a horizontal composition passing across the canvas from right to left; perhaps the two planes on which the figures move do not

sufficiently detach themselves; but it is full of interesting detail. In the distance is the opposite bank of the Nile, with a crowd of small figures, also not without their interest. We have got so used to this artist's mastery of Greek and Roman subjects that one hardly knows whether to wish that he should leave these for Egypt; this picture is not equal to his greatest successes in the other class of subjects; but Egyptian architecture and art has great possibilities for a painter of Sir L. Alma-Tadema's special powers, and he may do much more with it yet. What we do want to see from him, however, is a picture of the interior of the Colosseum during a great show, with a group of the spectators in one of the galleries as foreground figures. He might make a wonderful picture of that, and he is perhaps the one person who could do it.

Mr. Gow, on his part, has not done wisely in quitting his Jacobite and Peninsular scenes of warfare to attempt to portray "A Roman Triumph" (182). He is not in his element there; the picture is hard, theatrical, and unreal, and the architecture poorly painted and not in perspective. Among the important pictures in which figures are the principal element is the late Mr. Furse's "Cubbing with the York and Ainsty; Children of the Master Lycett Green, Esq." (515). This hangs where his remarkable picture, "The Return from the Ride," hung two years ago; and though nominally a portrait group, it is one of those which we look at rather as a picture than as portraiture. It is a mounted group of young people who pass across the picture, one of them on a white horse with a very vigorous action. It is not nearly equal to the "Return from the Ride," but the Academy were perhaps right in purchasing it out of the Chantrey Fund, seeing that there is, unhappily, no more to be had from its late gifted author. But why did they not purchase "Diana of the Uplands," if it was to be had? In a pictorial sense it is certainly the most remarkable work that Mr. Furse ever painted. Another large picture which probably is, but does not profess to be, a group of portraits, is Mr. Collier's "The Cheat" (387), a quartet of two ladies and two gentlemen playing presumably at Bridge; the situation is sufficiently implied by the title. It is not a nice subject to have painted, and it has the defect that it does not absolutely explain itself; it is open to doubt whether the lady standing up is the accuser or the accused, since the expression on her face (forcible enough) is not so much that of indignation as of insolence, and is open to the interpretation that she is prepared to brazen it out; if the face had expressed a more dignified indignation there would have been no doubt on the matter. We presume, however, that the seated lady is the culprit. It is a clever picture, but an unpleasant subject, treated in an unpleasant manner, and looks like a kind of libel on the Society of the day.

Among paintings of romance, classic or mediæval, is Mr. Waterhouse's "Lamia" (125), in which his now well-known lady with the bright red hair kneels cajolingly before a knight in armour. We do not, we confess, know any Lamia but Keats's, and this is certainly not she; we do not recollect whether Keats drew upon an existing legend, but if he did, it was certainly Greek, not mediæval; indeed, the personages of his poem are antique, so far as they can be referred to any period. However, this is a picture of a knight and a lady, fine in colour and composition, and "Lamia" does well enough as a title; only if the artist had tried to realise for us on canvas, and had succeeded in realising, the sinister creation of Keats, he would have produced a picture of much higher intellectual interest. As it is, our impression is that the picture was painted as a composition, and the title "Lamia" tacked on to it afterwards; but painters (too often) have that way with them. Was it the same also with Mr. Draper's "Ariadne" (260)? Did he set out to paint Ariadne, or to paint a nook in a rocky coast, and a bit of sea lovely with glancing colours and reflections? For that is what makes the picture; not the figure, which has little interest or pathos. Ariadne has suffered a good deal at the hands of modern English painters, who seem to think they have done all that the subject requires when they paint a woman in some apparent distress—a kind of *genre* Ariadne; whereas Ariadne should be a great idealised figure, the summary in her person of the whole tragedy of woman abandoned. Watts alone, as far as we can remember, has risen to this conception. Mr. Storey's "Venus lamenting the loss of Adonis" (445) curiously conventional as it is, has a fine quality of colour and pictorial conception.

Among the more important of the pictures dealing with the life of the present day there are two worth especial notice. Mr. Stanhope Forbes's "Homealong" (535) is one of his most successful and interesting works of this class. The scene is on the quay of the harbour of a small fishing town, with a clear evening light behind the high land at the back of the scene, and figures standing about and exchanging salutations with the men going home from work. The charm of the picture lies in its completeness, in the atmosphere of evening quiet and rest from labour which pervades it, and which has a poetry of its own. The other picture we referred to, Mr. Chevallier Tayler's "Sisters" (711) is of a different and more dramatic interest, and is a more serious piece of work, in feeling and intention, than we generally see from this very clever painter. The story here is told as incisively as possible; the sister who has sold herself for wealth has come in her carriage to the fish-market, where she finds her mother and her honest sister keeping a stall, and retreats to her carriage before the indignant and contemptuous eloquence of the sister, while the mother weeps. It is well painted in every part; the figure of the virtuous sister is fine and energetic, and the work as a whole is quite a success. A pleasanter and happier subject of humble life is Mr. Wetherbee's "Hark, Hark! the lark" (349), which is as much a landscape as a figure picture; there is a very successful effect of sun-rise, and a man ploughing in front of the morning light, while a girl nearer the foreground and looking up at the lark gives the title to the subject. The grey tone of the dew-covered grass is a point to be noted in a carefully studied and charming little picture. Mr. Bacon's "His own poems" (64), in the first room, should not be passed over, because it is his; but he is a very unequal artist, and this bit of humour, clever as it is, is far below his remarkable work of last year. The rest of his exhibits are portraits.

Besides the great portrait group of the Marlborough family, Mr. Sargent exhibits a very fine one of "The Countess of Warwick" (168), her face seen light against sky (in this case again a convention which could not exist), and her little boy on a kind of pedestal by her. This, like the Marlborough picture, is of the order of sumptuous portraits, and a most effective work of its kind. The same artist's power in dealing with a plainly realistic portrait with no search after effect—a likeness merely—is shown in his life-like and interesting portrait of our honoured London centenarian, Señor Manuel Garcia (51). Mr. Ouless's portrait of Mr. Peter Reid (47) which hangs as a pendant to the last-named, may stand as another example of the class of portrait which professes mainly and in the first instance to be a good likeness, though, in the case of the Garcia portrait, interesting us also by its style and treatment. So with Mr. Orchardson's half-length portrait of Mr. Colls (the one presented to him recently at the Builders' dinner), which hangs in the large room (221); a good likeness, but interesting beyond that for its individuality of style and colour. At the head of Gallery III. hangs Mr. Fildes's large canvas containing the portrait of the Queen (146), which in the catalogue is described as "The State Portrait; painted by Command of H.M. the King." What, we wonder, is supposed to be the quality, in an artistic sense, which goes to make a "state picture"? This one fulfils the requirements of being especially sumptuous in effect; "stately" in fact would be the adjective to describe it, and this we suppose is as it should be; but it is rather hard in style, and not one of the most interesting of the portraits from an artistic point of view; for a state picture art must evidently give up something, and not assert itself too strongly. Among portrait groups Mr. Solomon has a clever and interesting one of his own family (apparently), under the title "Papa Painting" (80). Mr. Ralph Peacock has a charming portrait of a little child (722) standing in the open air with large blue hat on, and relieved against a broad tree trunk. But of the portraits of the year none pleases us more than Mr. Cope's, in Gallery IV., of "Mrs. Edward Joicey" (274). This is a portrait which in its full broad style and fine colour has much of the quality of Millais at his best, and might almost be taken for a Millais.

The finest landscapes this year (if it is not an Irishism to put it so) are sea-paintings. Mr. Hemy exhibits two pictures of great power, both dealing with ships of war; "Betrayed by the moon" (299) and "Escape of the Destroyer" (428). The first is a scene in which a torpedo destroyer has been caught sight of by moonlight from a man-of-war,

which has turned her search-light on, so that here we have a rough sea with the surface lighted by an electric light which fairly puts out the moon. It is a difficult subject treated with great power; but this is perhaps surpassed by the companion work, which shows the sequel of the incident, how the destroyer escaped. Here the destroyer is on the right of the picture, rushing through the water, which surges up to the top of the bulwarks, and with a forced draught on which sends a mass of flame and smoke from the funnel; in the distance is a battleship, and a fountain of water rising shows where one of her shots has struck the surface. The sea-water is painted with that power of representing the surface and the swing of sea-water in rough weather of which Mr. Hemy alone at present possesses the secret. These are two great pictures of their kind. Mr. Wyllie exhibits a large Trafalgar picture—"Trafalgar, 2.30 p.m. October 21st, 1805" (459); the ships are portraits as far as possible, their names are given below on the frame. This is a fine picture of the great historic sea-fight, carried on upon blue water and under a blue sky, and apparently, from the sit of the sails, in a very light wind. The ill-fated "Santissima Trinidad" forms the main foreground object with a floating wreck of masts and cordage beside her. There seems a rather unnecessary or unaccountable wave and trough of the sea just in the foreground, as if put in to give foreground incident (something in the way in which Turner used to manage a wave just where he wanted it); this kind of unexpected wave seems rather often to get into the foreground in pictures of naval engagements; and we should feel a little sceptical also as to the shot-holes in the royals of the ships; naval gunnery had not a very long range in those days; actions were fought at close quarters, and one could hardly suppose they fired in the air at a ship's top-gallant masts. But as a whole this is a fine and carefully studied picture of a great subject. Among landscapes perhaps the best in the exhibition is Mr. East's "Autumn in the Valley of the Ouse" (741), in that it best fulfils the real object of landscape-painting in giving the sentiment and feeling of a scene rather than an attempted realism. His "Early Morning in the Cotswolds" (334) is a picture of the same kind of excellence, though not quite equal to the other one. This is not a strong year in landscape—few Academy years are, for landscape is not the strong point of the English school at present; there is too much of prettiness, too little of power. Mr. Aumonier's one landscape, "The Black Mountains" (198), is a fine scene in a somewhat dreary undulating country; a poetic picture; and Mr. Arnesby Brown's "Sundown" (18), a level composition of landscape and cattle, has a pervading repose of effect—partly due to the lighting, partly to the lines of composition—which gives it a distinctive character. Mr. David Murray's landscapes illustrate the want of this principle of a pervading intention in the composition; as usual with him now, they are not composed at all, but are completely ragged in line and uncertain in aim, all except his Diploma work, "Swedes" (257), now exhibited, but we should imagine painted some time back. This, showing a flat turnip-field with a large sky above it, is really a landscape painting in the true sense of the word; he could paint landscape then; he seems to have given it up now, and only paints scenes. If one regarded landscape-painting as the endeavour to give the realism of a scene, no doubt Mr. H. W. B. Davis's "The Farm Gate" (50) would bear away the palm this year. It is a scene outside a farm-yard gate, with trees shadowing the foreground; the foreground incident, the bits of worn path and the grass between, and the look of the whole thing, are so real that one might almost walk into it, nor does he forget the little bit of distance which lends enchantment to the view; it is a most charming picture, yet somehow one feels that the highest ends of landscape painting are not aimed at in it. We prefer, though it is less striking at first sight, his smaller picture "The Fields in Early May" (84), more especially for the way in which the middle distance country is modelled and mapped; the larger picture is practically all foreground; this one is not, and presents some of the broader elements of landscape. Among smaller works, one that cannot be passed over without special mention is Mr. La Thangue's brilliant and forcible little picture, "Selling Oranges in Liguria" (226); it is rarely that one sees such a bright effect of colour, light, and air in a painting.

There are a good many pictures of miscellaneous interest of which we may take some note on another occasion; we have aimed in this article only at characterising the salient features of the exhibition. But it is remarkable, when one comes to go into it, what a number of pictures there are (amid many mediocrities) which are really worth attention. We cannot but make this remark in view of the constant habit at present among art-critics (or those who claim to be such) of abusing the Royal Academy and talking with contempt of its exhibitions; it seems to be a kind of Shibboleth to prove that you are in the right set, just as "praising the works of Pietro Perugino" was said to be in Goldsmith's day. Now the fact is that if you were to pick out the hundred or two best works from any average Academy exhibition, you would have the best mixed exhibition of the year, and only prejudice or wilful blindness could question it. If the experiment were to be tried this year, for instance, the New Gallery Exhibition would be simply nowhere in comparison. The Royal Academy is not all that it should be or might be, but the wholesale abuse of it by writers in magazines is a mere fashion of the day—and a very foolish fashion.

MEMORIAL OBELISK, STAPLEHURST. — The memorial, erected at Staplehurst to the memory of the Staplehurst and Frittenden Protestant Martyrs, was unveiled by General Sir William Stirling, K.C.B., R.A., on the 26th ult. The monument, which is an Aberdeen granite obelisk, 16 ft. high, has been erected at the corner of the Marden-road. It weighs altogether about five tons, stands on a concrete foundation, and is enclosed by an iron railing. The memorial was designed by Mr. W. Brooks, who also superintended the carrying out of the work.

NOTES.

Registration.

WE publish in another column a letter from Mr. G. A. T. Middleton, who (as our readers are probably aware) has been a very active propagandist of Registration for architects, putting the case from his point of view, which is rather a new one. He says that he regards it as an influence in favour of the more complete education of architects, who under the proposed system would have no chance of being allowed to practise unless they could prove their proficiency in the science of building. We have no doubt Mr. Middleton is sincere in putting it in this way, but we fear we cannot accept that as representing the general basis of the movement. The real motive, to stop builders and others from calling themselves architects and thus (as is supposed) injuring the pockets of the profession, has been too much flourished, in the provinces especially, to leave any doubt possible. In regard to that point we may once more ask, is architecture an art or a business? If it is an art, why are architects to be more sensitive than sculptors, who must constantly pass the shops of carvers and monument-masons with the word "sculptor" written up, and yet possess their souls in patience? And if architecture is to be regarded as construction, how is it that the engineers, whose work is construction and nothing else, do not find registration necessary? The real answer to this, as well as to the education argument, is that the engineers are a united body and the architects are not. For an engineer not to be a member of the Institution is a stigma against him; for an architect not to be a member of the Institute is not, because architects will not all combine. If membership of the Institute were a practical necessity to an architect as membership of the Institution is to an engineer, the Institute's examination would answer all purposes. If a Registration Bill is passed (which we think very doubtful), it will be indirectly the fault of the very men who object to it most—those who will not support the Institute and who therefore weaken its hands. And as to the question of the jerry-architects, the effect of such a Bill will necessarily be to confirm their position. We can imagine nothing more calculated to lower a great art to the level of a trade.

The Walls of Berwick-on Tweed.

IT is announced that H.M. Office of Works have decided to take over, with a view to their maintenance in future as a national monument, the ruins of the older walls of Berwick, whereof the spoliation had recently been sanctioned by the Town Council. The pieces of the wall, at present hidden for the most part by grass-covered mounds outside the later fortifications of *temp.* Elizabeth, were built by King Edward I., and in or after 1318 were raised and strengthened with towers by King Robert Bruce, who there, together with his son-in-law Walter, the High Steward, withstood the attacks of Kings Edward II. and Edward III. The wall formerly extended eastwards from the castle to the fort in the Magdalene-fields, and

thence southwards to the sea, where is now the malt-house in Pier-road. The ruins include the Bell Tower, which contained the bell for sounding alarm on the occasion of an incursion from across the Tweed. The tower, however, presents indications of being a restoration effected at a later time, and seems to belong to the Tudor period. In Queen Elizabeth's reign the fortifications of the town were strengthened, and a new rampart, built of earth and stone, was erected within the Plantagenet wall. It has since been converted into a promenade with a saluting and other batteries, and is in the care of the War Office.

A Lesson from Antwerp.

NOTWITHSTANDING the efforts of Government, and a Royal Commission, and the Bills promoted by public bodies and private associations for the improvement of the port of London, we seem to be as far as ever from the consummation of that desirable object. No one can expect that the various authorities having jurisdiction over the Thames will ever agree upon co-operative action, or that a satisfactory solution of the problem will be found until Parliament makes up its mind to settle the matter without further nonsense. The agreement recently concluded between the Belgian Government and the municipal authorities of Antwerp comes as a striking illustration of what can be done when people are willing to drop petty jealousies and work together for the common weal. In virtue of this agreement a new channel, five miles long, will be cut through the bend of the Scheldt at the north of the city and a succession of docks and quays will be constructed along the new waterway, thereby giving four times the existing accommodation for shipping. The project involves the demolition of the old fortifications and the building of an outer circle of forts by the military authorities. It is estimated that the total cost will exceed 12,000,000*l.*, and the completion of the works will make Antwerp one of the largest and best-equipped ports in the world. We talk; other nations act.

The Wall in Grosvenor-place.

IN a letter to the *Times* of Tuesday, Mr. Cowper-Coles makes a suggestion which the Commissioner of Works and the Westminster City Council will do well to take into consideration. It is known to most Londoners that the high brick wall forming the western boundary of Buckingham Palace grounds presents a deep concavity not far from its southern end, with the result that the pavement attains a maximum width of something like 40 ft. The increased space on the footpath is not of the least use to passengers, and its only effect is to encourage the accumulation of dust in dry and windy weather. At the corner of Lower Grosvenor-place the pavement narrows so that foot-passengers have scarcely room to walk. In the letter to which we refer it is suggested that the wall should be taken down and rebuilt so as to throw the unnecessary pavement area into the palace grounds, and to increase the width of the footpath and carriageway at the corner of Lower Grosvenor-place by taking away a small slice of land, which forms no part of the pleasure grounds, although included within the boundaries of the palace property. The improvement would be a great boon to the public, and we hope the proposal will commend itself to the authorities concerned.

Electric Power Supply.

THE supply of motive power at a very cheap rate will probably revolutionise many of our industries. In particular, it will be a great boon to the small manufacturer. The paper, therefore, by Mr. A. M. Taylor on "Motor Load Development," which was discussed this week at the Institution of Electrical Engineers, is of more than technical interest. The author starts by assuming that the existing prices for power quoted by small stations are quite prohibitive when the load is required for several hours a day. He suggests that central station engineers should sell power at extremely low rates to all consumers who are willing that their motor supply should be cut off for one or two hours a day during the "peak" of the lighting load. Practically the only objection to this suggestion is that in the event of a day fog coming on suddenly the motor load would swamp the lighting supply. Mr. Taylor discussed this difficulty at length, and proved that, in the case of a provincial town, at least, the difficulty was not a real one. Even in London the "restricted hours" system was applicable if certain precautions were taken. In Montreal, where a rebate of about 20 per cent. on the meter bill is offered to those consumers who agree not to use the supply during the peak of the lighting load, it was found that 30 per cent. of the consumers accepted the restrictions. It has recently been estimated that, if power were supplied cheaply, a load of 500,000 horse-power could easily be obtained in London. Mr. Taylor points out that, if 30 per cent. of this demand could be obtained on the "restricted hours" system, it would be very profitable to the supply companies, as they could easily supply this load without any additional expenditure on machinery or cables. It will sound very attractive to many consumers to hear that the price suggested was from ½d. to ¾d. per unit. In the discussion it was stated that at Bradford about 700 motors were let out on hire. Mr. Taylor also suggested that when an unrestricted power supply was desired the difficulty of the peak load might be overcome by means of a few accumulators and a small dynamo on the consumer's premises. This could easily be arranged, and is perfectly feasible.

The Expansion of Clay.

IN a paper read before the Society of Engineers, Mr. Ernest R. Matthews gave a striking illustration of the expansion which takes place in clay when a large vertical surface has been exposed. This was the case at the back of the parade extension at Bridlington, where the clay had been exposed in connexion with the building of a retaining wall. The foundation trench for the wall was excavated on a Saturday morning and the width was carefully measured. On Monday morning the filling in of concrete was to have been commenced, but, before proceeding with this, the author had the width of the trench measured again, with the result that it was found to be 5 in. less than the previous measurement. This diminution was owing to movement of the clay, and upon examination of the ground some feet back several cracks, one of them nearly 2 in. wide, were discovered in the clay. The author further mentioned the case of a retaining wall that had been pushed entirely out of line by the movement of clay, caused in the first instance by expansion resulting from the exposure of a vertical face to the air.

The Garden City.

THE garden city, as it is called, in Hertfordshire seems to be making satisfactory progress. Its course will, as we have previously pointed out, be watched with interest and sympathy, not because this semi-philanthropic enterprise can be repeated, but because it may act as an example to the authorities of existing and growing towns to recognise the importance of space and foliage in a town. Nothing can be more inexcusable than the way in which London has been allowed to grow without care being taken to reserve spaces of greenery. The so-called "gardens" are absolutely, in most cases, misnamed. But a garden city has long existed in Great Malvern, where each house usually stands in a garden, and where in the springtime dwellings can scarcely be seen among the white flowers of the fruit-trees. Great Malvern is an example to be followed by every town in Great Britain, and it reaps its reward not only in the pleasure which it gives to its inhabitants, but by the healthiness of the town itself, arising from abundance of space.

LETTER FROM PARIS.

THE Société Nationale des Beaux-Arts (New Salon) have elected M. Alfred Roll as their president, in place of M. Carolus-Duran, who has to resign to take up his duties as Director of the School at Rome. M. Roll was one of the most enthusiastic founders of the New Salon, along with Meissonier and Puvis de Chavannes, and the choice is generally approved in the artistic world. M. Roll, who is a native of Paris, was a pupil of Gérôme and of M. Bonnat. M. Besnard has been appointed Vice-President in the Section of Painting, in place of M. Roll, while M. Lhermitte takes the place of M. Besnard.

M. Redon, the architect to the Louvre, is at present engaged in completing the transformation of the Pavillon Marsan, the interior of which has not for some years been made use of in consequence of the unfinished grand staircase occupying all the central portion of the construction. In the place of that staircase, as inconvenient as it was stately, there is now a large nave with side galleries at half its height; these, as well as the main floor, are occupied by the Union des Arts Decoratifs. Here will be installed the collection of wood carving and furniture left by M. Peyre, who had always intended this collection as a gift to the city. It is said that the galleries will be opened this summer, though the Union des Arts Decoratifs has a bad name for procrastination.

The Service des Beaux-Arts of the Paris Municipality, which generally keeps its engagements with the public, is opening this month, as announced, its exhibition of works in metal at the Musée Galliera. It will contain some remarkable objects in the shape of decorative metal work allied to architecture; hammered iron doors, staircase ramps, etc.

The equestrian statue of Lafayette, offered to France by the Americans, and executed by an American sculptor, Mr. Bartlett (pupil of Rodin), is to be shortly erected in bronze, on a marble

pedestal designed by an American architect, in the Square du Louvre, where the plaster model has been provisionally placed. It is an interesting work, but is rather lost behind the immense monument to Gambetta.

It is decided that there is to be a Metropolitan line of railway under the Grands Boulevards. The line, which forms an inner circle, has been adopted by the Committee of the Municipal Council. It will start from the Place de la Concorde, running under the Rue Royale and following the line of the Boulevards from the Madeleine to the Place de la Bastille. It will then pass under the Seine and return to the Place de la Concorde, or to the Invalides, by the Boulevard St. Germain.

M. Girault hopes to have the new stables at Longchamps completed in time for the Grand Prix de Paris. These buildings are very picturesque in appearance. The group consists of four blocks of buildings surrounding a large court-yard. The principal building, forming the façade shows an arcading in red brick on a stone surbase ; there is some good wrought-iron work to be seen, and the total effect is very successful.

It was proposed recently to erect a statue to Baron Haussmann, who did so much to make Paris what it now is ; and the recognition was the more fitting, inasmuch as Alphand, who was his collaborator, has already a monument. But Haussmann was unfortunately a functionary of the Second Empire, and this connexion is sufficient to deprive him of a monument, in the opinion of the City Fathers. It is even suggested to remove his name from the "Boulevard Haussmann." All this is rather pitiable, and moreover is only a temporary attitude of the official mind. There can be no doubt that a monument to Haussmann will eventually be erected in Paris, whatever the present administration may think of the matter.

LAMBETH MUNICIPAL BUILDINGS COMPETITION.

THE important nature of the proposed municipal offices for the borough of Lambeth, combined with satisfactory conditions, has naturally attracted a large number of architects to the open competition for designs. The enormous collection of interesting drawings, representing the efforts of 143 competitors, is to be seen during the current week at the public baths in the Kennington-road.

A spacious triangular site having two road frontages—Brixton-hill and Acre-lane—has been acquired to receive the new offices, and a portion of the land is to be reserved for future use, probably a town hall. The accommodation is that usual to these buildings, consisting of council chamber, mayor's suite, committee rooms, offices for town clerk, engineer, accountant, medical officers, and apartments for housekeeper, etc.

Generally speaking, the merit of the work submitted is of a high average, and naturally there is great diversity of idea in the working-out of the problem. The angle formed by the intersection of the two streets is about 42°, and the consideration of this element has formed the basis of the majority of the schemes. Some, however, disregard the angle, give up much of the site to public ways, and adhere to square forms, more suited to any site but the one at disposal. Plans, elevations, and sections to $\frac{1}{16}$th scale, a $\frac{1}{2}$-in. detail and perspective view, were required to illustrate the proposals.

The assessing of a competition of this magnitude is a task of some difficulty, and at the time of our inspection of the designs no public announcement of the award had been made. Some official leaflets, however, had been placed in the room, giving the information that the assessor, Mr. H. T. Hare, F.R.I.B.A., is of opinion that "the design numbered 66 best meets the requirements, and that the author should be appointed architect ; that numbers 75 and 94 should receive the second and third premiums respectively" ; and that seven other sets of plans are "very excellent." With the exception of the design placed first we are not in agreement with this selection.

The merit of design No. 66 appears to lie in the simplicity and economy of plan, and is probably one of the least costly of the many proposals. The principal entrance, at the apex of the triangle, provides access to groups of offices fronting the respective roads, from which secondary entrances are contrived to serve the central block containing rates office, appeals office, council chamber and gallery. The two frontages are of different lengths, and no attempt is made to assimilate them in design. The main staircase ascends in and around the piers of a large tower, which, although unusual, does not promise well for what is usually expected in a municipal building. The council chamber and more important departments are admirably grouped at the north end of the building, and, although lavatory accommodation is too small, in general respects the plan may be said to be straightforward and workable. The main entrance, however, is cramped, and the three external doorways hardly receive adequate importance in their design. The tower is beautifully drawn and designed, but loses in interest by rising from an unknown position instead of exposing its whole height from the ground, and its axial setting is not so pleasing as if it had been placed square with and in relation to the principal front. The Brixton-hill front has much dignity and breadth in the management of its masses. It is refreshing to find no pediments, and but a very reserved use of columns, while the ground and first-floor windows are joined up as single vertical stone features in a red brick setting, all with sound detail. In substance, this design will express the importance of the borough and efficiently house its administrators at no very great tax upon the ratepayers—a cry of which so much is heard nowadays.

No. 75, recommended for second premium, approaches the subject in a different way by ignoring the chance of an angle entrance and consequent important treatment of the minor frontage. The principal entrance is placed in the middle of the Brixton-hill façade, and upon this lateral axis the scheme is arranged. A large entrance-hall and staircase lead up to the council chamber, below which is the rates office, served by its own entrance from Acre-lane. Offices are placed lett and right of the hall and in a wing on the north front, while a similar block is provided at the south end at a corresponding angle ; the wings join up the rates office block, and two areas are thus formed in a symmetrical scheme. The general idea is workable, and the grouping of the principal rooms on the first floor about the staircase very dignified ; but there is a large basement, and the plan has the appearance of a strained effort. The dome, rising behind a pediment in the main front, is a mere feature, performing no work of lighting or any other useful purpose. There are two many columns on the same elevation, while the detail is open to improvement. We did not discover the claims of this design for the prominent position it receives in the awards.

The superior qualities ot design No. 94, where the recessing ot the apex entrance and consequent loss of land to produce an angle façade is resorted to, did not reveal themselves. The arrangement drives the buildings into a small compass, and the author has cleverly extricated himself from the difficulty thus created. But the single entrance to the whole building, from which all sorts of confusion would arise, combined with the commonplace character of the work, are two elements only which should have excluded this scheme from the premiated awards.

Of the seven specially mentioned proposals, No. 4 is perhaps the best both in the matter of plans and elevations; indeed, the perspective view and detail suggest some of the best architecture in the exhibition. Three blocks of offices and corridors are arranged in the form of a triangle, in the middle of which is the council chamber and rates office building set on the axis springing from the centre of the Brixton-hill elevation. Here the main staircase extends to the front wall of the building, where a large window is inserted. Although the public space in the rates office is too small, the scheme is full of admirable points. The rounded angles of the main façade are charmingly treated, but we could wish for a link between the ground and first floor windows and a little less modesty and reserve in the central turret. This excellently symmetrical plan has much to recommend it.

No. 28 is on somewhat similar lines, with some clever points and some wasteful ones. Two main staircases close together are surely extravagant, and the oval-shaped council chamber is a curious idea. Apart from some central and terminal interest the exterior is commonplace. An excellent, simple plan is shown in proposal No. 55, but no attempt is made to produce an important staircase, although having much waste space around it. The plan is contrived upon the axis of the angle site, and in certain aspects is crude and inconvenient. A circular colonnade and a dome mark the apex entrance, and a segmental corridor encloses the council chamber. There is too much passage in this proposal, which has much architectural merit, to which the view does scant justice. No. 40 is a remarkable production, which ignores the triangular site altogether. It is a plan formed upon the basis of the main front, and is elaborated with spherical rooms, circular stairs, curved ends to the north and south fronts, and domes by the dozen ; it is literally bubbling over with circles and domes, and, apart from prohibitive cost, has nothing to deserve special reference in the award. The first floor plan of No. 80 excites imagination in the possibilities of the main hall and staircase. The planning of other parts is excellent, but we are inclined to think that the author has prejudiced his chances by placing the rates office in the basement, and by losing sight of the question of expense. The exterior is very satisfying, except the circular portico, which is almost detached from the main building, and behind which nestles a balcony for the wearied members of the council. No. 90 is very monumental, and is one of a few competitors who place their council chamber in the corner position, yet keeping the main stairs and entrance in the centre of the Brixton-hill front. The angle is set back, and a curved colonnaded end flanked by two sturdy towers is the chief feature in an admirable scheme, which is somewhat overburdened with entrances. The council chamber is again on the angle in No. 97, but too far away from the committee-rooms, and although the building is high above the pavements, the design has merit.

The following are the more important of the schemes which do not receive the assessor's commendation. Scheme B is the better of the two designs sent in by the author of No. 130, which are both of a parallelogram form. Some charming character is given to No. 132 by its steep roofs and the colonnaded recess in the main front ; but the plan deserved more mature consideration. No. 126 deserves mention, for it is a good compact plan full of excellent points. The axis is square with the Brixton-hill frontage ; the north wing is kept back from the angle extremity of the site, the council chamber in the middle of the composition, and the remaining blocks arranged to maintain symmetry.

As showing the diversity of idea in competition productions No. 138 is instructive. A plan of no merit is given remarkable elevations, whereon the main front has fourteen large segmental pediments and a number of domed turrets, all of which are exaggerated in the perspective view. That the author is not serious is shown by the fact that the gradients in the two streets are indicated the reverse way from what they actually exist. Again, No. 139 has imagined and planned the future town hall much to the discomfort of the plan of the building at present in hand. The perspective view suggests a public place of cheerful purpose. Design No. 98 is illustrated by a delicate coloured view. The general effect is one of great breadth, dignity, and restraint, rather Byzantine in the influence of its massing and outline. The conception is suited to a superior climate than Lambeth possesses, and, unfortunately, the plan does not appeal to the architect to the same extent, and somewhat suggests the work of a collaborator. No. 107 is a scheme with considerable merit. It is a plan based on the axial line, having elevations to the two streets of the same design. The entrance in the centre of each façade is surmounted by a large tower, and the two features thus introduced add materially to the interest and dignity of the whole.

The view of No. 105 is very impressive, although the heavy octagonal tower does nothing. The plan is excellent, and has much to deserve recognition. Committee-rooms and other important departments are placed upon the quieter of the two roads. The perspective view of No. 83 is the colour spot of the show ; apart from that there is much that is good in plan, although the main stairs are cramped. The severity of No. 63, wherein a Vanburgh kind of central mass is seen, is an excellent quality. The interiors would gain if the same commendable influence were at work. No. 59 has great dignity in the main block, but the design falls away, as does the building in the lower and smaller parts, arranged at the north end of the site. The

plan has much to repay a study, but it is of a form which disregards the actual shape of the site.

No. 58 is an inconvenient triangular plan, but the design of the central entrance and tower is good. The pencil perspective, which shows design No. 34, is an interesting drawing of a good scheme. The angle tower reaches to the ground, and the brick and stone fronts are excellent. The council chamber at the south end of the main front has perhaps destroyed the chances of success of this composition, for there are incessant noises in this street.

The general intention of No. 51 is most excellent, whereof the elevations have distinction. The plan, too, a parallelogram with two small internal areas and a central entrance with staircase, is fine in parts, but the change in level between the council chamber and the mayor's and committee-rooms is not the most convenient arrangement. But the scheme is another equal, in our opinion, to those placed second and third.

The ½-in. detail in No. 17 promises something very fine, and the perspective drawing quite bears out this supposition. Here the council chamber is in the centre over the main entrance, which is a mistake, in view of the heavy tramway traffic of Brixton-hill. The dome and pedimented recess, containing a large window, add to the excellence of the central group, while the whole composition is enhanced by other good features and by an interesting tower. No. 20 is affected by the Byzantine revival, but only in its fronts; had the same influence been extended to the planning the scheme would receive more comment.

A charming coloured view illustrates a triangular scheme No. 8. The main façade has at each end a pediment crowning an entrance, together with an open circular colonnade. The intervening space has no disturbing element, and the result is one of imposing effect. By a remarkable coincidence the electric tram shown in this picture is seen to possess the same character in solids and voids. The plan is excellent, and, with the public way on the south-west side, the design assumes an island nature. The council chamber and anteroom are separated by a corridor, and the town clerk has a poor outlook, otherwise the scheme is full of merit deserving a better fate.

THE INTERNATIONAL BUILDING TRADES EXHIBITION, ROYAL AGRICULTURAL HALL, LONDON.

[SECOND NOTICE.]

WE now turn to Row D, and passing the exhibit of the New Expanded Metal Co., which will be described in another column, we arrive at Stand No. 81, where Messrs. Joseph Richmond & Co. show a hand dinner lift, an express lift for small parcels, an express supper lift, a quarter-scale working model of the Richmond-Carey automatic electric lift operated by push buttons, and an electric dinner lift working up to the roof of the hall. At No. 80 Messrs. Dawson & Co. have a large exhibit of their "Ephos" brown-glazed sanitary ware, including a new stable-gully, rainwater shoes, waste-pipe channels and gullies, etc., in addition to red sand-faced bricks and yellow facing shippers; they also show a number of columns and steps of Echaillon marble (white, yellow, and rose), a French marble which they are introducing into this country; mention may also be made of the "asbeslate" sheets and tiles for lining walls and for roofing, the material being a mixture of asbestos and cement. Messrs. Stanley Bros. (Nuneaton), at Special Position No. 9, have a large and well-built stack of glazed bricks of various colours, and other examples of their clay ware.

The Rhodes Patent Sash-hanging Co. (No. 79) show a number of ordinary guillotine windows fitted with their patent steel chains and toothed pulleys; the teeth on the pulleys are spaced to fit into the links of the chains.

At the next stand Messrs. B. Ward & Co. have an interesting exhibit of artificial stone columns, balustrades, entablature, and pediments, window dressings, steps, etc., and also concrete paving, terrazzo and marble mosaic flooring, parquet, and wood-block flooring, mosaic hearths, etc. Messrs. George M. Callender & Co. (No. 77) provide an object lesson in proof of the valuable properties of their pure bitumen sheeting; a large shallow tank has been erected, and the floor and walls rendered watertight by means of the sheeting; various methods of facing the interior of the tank are shown, including white glazed tiles and bricks, and cement rendering.

Near this is Special Position No. 3, occupied by the structure erected by the Crittall Manufacturing Co.; the exhibit includes some excellent examples of wrought-iron work, in addition to iron casements and sashes, stained glass, metal lockers for clothes, etc. The Patent Indurated Stone Co. (No. 76) show balustrades, sundials, steps, etc., in "grey," "light stone," and "brown Portland" artificial stone. Messrs. Diespeker's exhibit at the next stand is one of the most conspicuous in the exhibition; it contains a number of panels in their "patent British glass mosaic," but it is no honour to this country that its name should have been given to such a sham; the panels appear to be ordinary paintings on canvas covered with tesseræ of clear glass to give an effect approximating to that of true glass mosaic. Of more interest are the panel of true glass mosaic, the specimens of marble-mosaic flooring, and the red terrazzo steps with inlaid patterns of good design in black and grey. Messrs. Hofler (No. 74) have a miscellaneous assortment of well-made panelling, parquet flooring, etc., in Austrian oak, of wrought-iron dog-grates, large dogs, door-scrapers, fire-irons, electric-light fittings, and elaborate railing, and of asphalted sheet-lead damp course, with a model of the Duke-street electric generating station (Mr. Stanley Peach, architect), where it was used for the roof. At the next stand, Messrs. Gunton Bros. (Costessy, Norwich) exhibit a tracery-window in very good sand-faced brickwork, the colour and texture resembling sandstone; they also show a large ornamental chimney-shaft and a parapet in red sand-faced brickwork. Messrs. G. Aston & Son (No. 71) show the "Fram" fire-resisting floors and partitions. The floors have cast arched concrete blocks composed of Roman cement, sand, breeze, and wood fibre, fitted on to the flanges of rolled steel joists, and fixed without centring. The partition blocks are of plaster of Paris, sand, and wood fibre, and have the horizontal joints formed with continuous semi-circular tongues and grooves; "boards" of similar composition are shown for ceilings and for lining the walls of galvanised iron buildings, etc. At No. 70A the Parkstone Steam Joinery Co. (Upper Parkstone, Dorset) exhibit mantelpieces and doors in oak and deal, etc.; and at No. 70 the Rock Manufacturing Co. (Grays, Essex) show samples of their compressed "petrified wood fibre flooring," known as "Rockwood"; the flooring is composed of wood fibre and "petrifying Baralite cement," and is laid *in situ* on concrete.

At the end of Row C the Fire-Resisting Corporation (No. 69) exhibit doors, mantels, panelling, and cabinet-work (painted or polished), constructed of fire-resisting wood; the letter-files in the filing cabinet are of fire-resisting cardboard; an armoured door of the prepared wood, covered with tinned steel, is also shown. The Plaster, Brick, and Stone Co. (Leek) have erected a small building to show the application of their "Pytho" cements, which, like Keene's and some other cements, has gypsum for its basis, but is specially treated to prevent efflorescence. At No. 67 Messrs. Strange & Sons (Tunbridge Wells) exhibit joinery in hard and soft woods, the principal feature being the mantelpieces which are said to have been "especially designed by well-known architects." The "Arc" Fireproof Partitions Co.'s partitions differ from other partitions in the ingenuity of the bonding; the blocks are either "smooth" or "fine-key," the latter requiring only a thin finishing coat of plaster or cement. Messrs. Wenham & Waters (Croydon), at No. 65, exhibit steel and gun-metal casements and sashes, leaded glazing, radiators, sanitary fittings, etc.; and at the next stand the Adamant Co. (Birmingham) show some of the uses of their Adamant plaster and "moulding material," the latter being used for the decorated arch forming the front of the exhibit. The sides of the structure are formed with "Mantada" partition slabs; granited asphalt for roads and footways, brit-opal tiles, etc., are also shown.

Another fire-resisting partition is that of the London Fireproof Plate Wall Co.; the smooth-faced blocks are said to be of pure gypsum, and may be papered or distempered soon after erection; the rough blocks are of gypsum and breeze, and require a finishing coat of plaster or tiles; tongues, grooves, and holes are formed in the plates, which are grouted together with liquid cement.

One of the few exhibits of wall-papers is that of Messrs. Arthur Sanderson & Sons, Stand No. 62 being jointly occupied by them and the Gilmour Door Co.; the patent doors of the latter firm are well worth inspection, but as they have recently been favourably described in our columns, comment now is unnecessary. The Asbestic Brick & Tile Co. exhibit plain and moulded asbestic bricks in cream, yellow, grey, red, and other colours; they are said to be proof against "frost, rain, smoke or sulphuric acid." At 60 B the Kitchen Bath Fitment Co. (Sheffield) show two ingenious and compact combinations of sheet-metal sinks, baths and coppers for workmen's houses; in each case the sink forms a cover to the bath, but in one the sink is hinged at the back and lifts up, and in the other it is fixed, the bath being made to turn out on a swivelled outlet pivot. The Havelock Patent Partition Co. show partition-blocks united by tenons in addition to tongues and grooves. Stand No. 59 contains felts and damp-courses, silicate cotton in various forms, hair and hair fabrics, and a black anti-corrosive paint known as "Siderosthen," which is very flexible and adherent, all of which are exhibited by Messrs. D. Anderson & Son (Belfast).

The room erected by the Cloisonne Glass Co. contains examples of their stained glass in windows, lamps, screens, etc. At the next stand Messrs. J. A. King & Co. exhibit the well-known "Mack" fire-resisting slabs as applied to partitions, floors, ceilings, etc. The most novel variety has red unglazed tiles embedded in the face of the slabs with the joints left open for pointing in order to imitate brickwork; these are intended for the external walls of bungalows, etc. The steel corner-plate for the external angles in plastering is also shown, together with fireproof lathing, etc.

Messrs. F. McNeill & Co. exhibit slag wool in a variety of forms, and show its incombustible nature by means of a gas-jet burning in a heap of the material; other useful goods of this firm are felts of various kinds, damp-courses, and a new roofing material known as "rooftite," which is said to be free from tar and to have important advantages over other waterproof sheetings. At No. 53 Mr. James Brown has a small collection of moulded and ornamental bricks, and Mr. Arthur E. Brown exhibits the Frazzi fire-resisting constructions; the partitions are of perforated terra-cotta slabs grooved on the faces; in the floors flat and arched terra-cotta lintels, perforated and corrugated, are used as a permanent centring, the joists and girders being protected by similar material; the terra-cotta, which is made in Italy, is wonderfully fine in texture and true in shape. The Rowlands Castle Brick and Tile Works (Rowlands Castle, Hants) show at No. 51 a good selection of their pressed and hand-made bricks and tiles, in addition to blue paviors, quarries, ridge-tiles, etc.

At the next stand Messrs. John Knowles & Co. exhibit a large variety of stoneware drain-pipes, traps, gullies, closets, etc; special mention may be made of the "Wyvurst" manhole-channels, which are designed to prevent splashing; the Y-shaped branches allow a larger number of drains to be connected into a manhole of a given size, and cannot fail to prove useful.

In Row B (No. 48) Martin's Patents Co. exhibit the "Unique" reversible window-sashes; these are very simple, the sashes being pivoted or hung to separate stiles which slide in the usual grooves and project beyond the beads; the "quadrant" door-springs are also simple, the spring works in an annular tube or ring fixed to the frame, and passing through a slot in the upper edge of the door. Messrs. H. & F. Bonten have an interesting display of wrought-iron bars, mouldings, rosettes, leaves, and other ornaments, in addition to wrought-iron sash doors with moulded and enriched iron panels, collapsible gates, etc. Of more general interest to builders is Messrs. Howard Bros'. exhibit (No. 46) of the "Dey" time-register for recording the hours employed by workmen.

A model house is exhibited by Vulcanite Limited, to show their vulcanite roofing on wooden joists and boards; three layers of asphalt sheeting are used with vulcanite brushed on between and above the layers, the whole being protecetd by a layer of sand or fine gravel. At Special Position No. 6 a well-designed stand is admirably painted with Ripolin, partly enamel and partly flat. Mr. Thomas Potterton (No. 44) exhibits a number of kitcheners fitted with his ingenious "Zigzag" and "Rex" boilers; in one of the ranges two boilers are provided, the upper for the hot-

water services and the lower (with separate fire) for a low-pressure heating apparatus; the "Victor" gas-boiler and an automatic acetylene gas generator with gas holder are also shown. The Mosaic Manufacturing Co. (No. 42) show good work in marble mosaic, glass mosaic, parquet flooring, leaded lights, etc.; particular attention may be drawn to the decorative "opus sextile" glass mosaic. Heating apparatus boilers for low-pressure hot water and steam are shown at Special Position No. 2 by Messrs. Hartley & Sugden (Halifax), including the "White Rose" cast-iron sectional boiler and a variety of wrought-iron welded boilers. Messrs. James Price & Son have a miscellaneous display of well-finished cast-iron "Charlton" baths, lavatories and water-closets, paints, "chez-lui" enamels, etc., and at the next stand the Acton Concrete Partition Co. (S. Acton) show their partition-blocks, which, in addition to the usual semi-circular tongues and grooves, are keyed together at the alternate horizontal joints by means of projections and recesses. Messrs. Medway's Safety Lift and Elevator Co. (Deptford) exhibit self-sustaining and electric push-button dinner litts, and the gear for an electric passenger-lift. Fire-resisting partitions are again in evidence at the Granite Silicon Plaster Co.'s stand (No. 38), and near this, at Special Position No. 9, Messrs. Durolite show their white and coloured opal tiles, some of which are made to imitate (more or less truly) various kinds of marble. Other opal tiles are shown at No. 37 by the Newellite Glass Tile Co., including curved tiles for the vertical angles of walls and for the horizontal angles formed by walls and floors. Square-turned newels and balusters of varied design are exhibited by Messrs. Jones & Leach (Newtown, North Wales) at No. 36, and at No. 34 the South British Trading Co. show the Bardsley oil door-check and spring, which is easily adjusted for right or left doors, and the ingenious "Griffin" folding brackets for supporting flap-tables, etc.

In Row A (Nos. 32 and 33) the Stonwood Fireproof Flooring Co. show their "Stonwood" floor-covering in various colours; the material is laid *in situ*, and afterwards scraped and oiled. Next to this is the stand of Mr. A. Daniels, who shows the roofing and other felts made by the British Felt Co., and the Coolmore Durable Roofing & Asphalt Co.'s flat roof laid on wood boards, and consisting of a layer of felt, a layer of impregnated jute, and an upper layer of felt with mastic between and above the layers, the whole being covered with sand; Messrs. J. Standring & Co.'s "Thistle" sash-lines, etc., are also shown. Messrs. Hunt & Fage's patent scaffold-fixer is worthy of notice, and so also are the hand-made roofing-tiles manufactured by Messrs. H. T. Rayner & Co. at Rettendon (Essex). Messrs. H. G. Goodwin & Son (No. 28) exhibit joinery of various kinds and paper-stucco overdoors, etc., and painters will be interested in Mr. H. E. Kershaw's paint-remover, "Kompi." After passing the exhibit of students' work from the Architectural & Building Trades Department of the Northern Polytechnic Institute, and the builders' barrows and other plant made by H. Blacknell (Fleet, Hants), we arrive at Special Position No. 1, where Mr. William Griffiths exhibits opalite tiling with bull-nosed angle tiles. At No. 24 Mr. James Oates gives practical demonstrations of his useful trimming machines for wall-papers, and adjoining this is the very different exhibit of Messrs. A. C. Potter & Co., who show well-made fittings for tube wells, etc. Messrs. E. Worrall & Co. (Liverpool) show wrought-iron railing and gates of simple character; and Messrs. F. H. Rosher & Co. have a small display of bricks, tiles, artificial stone, etc. Paints (including Velure) are shown by Messrs. C. Chancellor & Co., sash-lines and other cords by Messrs. Jas. Austen & Sons, and mastic asphalt damp-courses and roofing-felts by Messrs. L. Lewis & Co. Another of the many fire-resisting partitions is that of the Excelsior & Phœnix Fire-resisting Partition & Ceiling Co. (why do directors select such interminable names for their companies?); there is nothing particularly novel in the blocks; they are made of lime or cement and pumice-stone. At No. 14 Messrs. Brown & Co. (Glasgow) exhibit their ingenious reversible sash-window, and at the next stand the Patent Adjustable Bath Co. show fold-up baths with revolving waste-arms. The last (or first) stand in Row A contains a large assortment of malacca drain-rods made by Mr. H. Hart.

In the "Bays" adjoining Row A there is a very good exhibit (No. 2) of dovetail-corrugated metal sheeting made by the Fireproof Co., and used in the construction of partitions, floors, flat and arched ceilings and roofs, steps, etc. Trucks, handcarts, tipping waggons, etc., are shown by Mr. H. C. Slingsby, and at the same stand the British Fireproof Construction Co.'s system of flooring with hollow terra-cotta blocks covered with concrete is shown; the floor is very light, and the bottom flanges of the joists are protected by the terra-cotta. Messrs. James Stott & Co. (No. 5) exhibit ventilating fans driven by belt, electricity, and water, air-inlets and exhaust ventilators, gas-governors and burners, "instantaneous" water-heaters for swimming baths, etc. Tip waggons of various kinds, portable railways, and other plant for contractors are shown by Messrs. Hugh Reid, Griffin & Co. at No. 6, and at the next stand Messrs. Cakebread, Robey & Co. have a trade assortment of sanitary fittings, kitchen ranges, fire-grates, tiles, castings, glass, oils, colours, etc. The well-known "Shannon" filing cabinets lead on to Messrs. Orenstein & Keppel's large exhibit of portable railways, tipping waggons, concrete mixer, etc. In addition to machinery, Messrs. Swinney Bros. (Morpeth) show a hollow brick partition with grooved faces.

In the wall-spaces on the left-hand side of the hall, the corner stand (No. 125), is occupied by the exhibits of Messrs. Smith & Wellstood (Bonnybridge, Stirlingshire); these include some "Adams" fire-grates and carved wood mantels of good design, portable boilers, cooking ranges, etc., and an ornamental cast-lead semi-circular fanlight 5 ft. 3 in. in diameter. Messrs. R. Harman & Co, exhibit the "Harman" electric lift in operation, showing its utility for raising building materials. At 127A Mr. James Cornes has an interesting "combined range, copper, and bath"; the copper is placed in a room behind the range, but is heated by the range fire; a low-level cistern fitted with a ball-cock governs the supply to the copper, and a draw-off pipe with cock is taken from the latter to the bath. Messrs. Bratt, Colbran & Co. show some well-designed mantels fitted to their simple and effective "Heaped" fires, and the Well Fire Co. (No. 130) have an equally interesting and larger display of their "Well" fires with wood mantels and hammered metalwork, faience, etc.

At the next stand Messrs. Clark, Hunt & Co. show the "Francombe" warm-air register stove in action; it has an air-chamber at the back, and certainly gives out a great amount of heat, but the design is unfortunately so inartistic as to prejudice the sale. They also show "Bailey's geyser boiler-range," in which a boiler is heated by the smoke-flue from a small self-contained range, and is fed directly by means of a stop-cock on the cold supply; the pipes from the boiler are left with open ends, and hot water is obtained by opening the cold-supply stop-cock. A large assortment of hard-wood boards and small polished specimens of various woods are shown by Messrs. W. W. Howard, Bros, & Co., and at No. 134 the Carron Co. have a good display of cooking ranges, hot-closets, fire-grates and mantels, stable-fittings, etc. A baker's oven in operation is shown by Mr. F. Wellstead at No. 136, and at the next stand the Brilliant Sign Co. exhibit many kinds of letters and signboards, etc.

The Minor Hall contains a good show of wrought-iron collapsible gates, ornamental wrought ironwork, pavement lights, etc., by the Bostwick Co., a small building constructed with white and coloured leadless-glazed bricks by the Gildenburgh Brick Co. (Whittlesea, Cambs.), a room with fibrous-plaster columns, wall-decorations and ceiling in a refined type of late English Renaissance by Messrs. George Jackson & Sons, the "Magic" patent reversible window-balance (an Australian invention recently described in our columns), the "Kleine" patent fire-resisting floor constructed with ordinary rectangular bricks and steel, Messrs. T. W. Palmer & Co.'s exhibit of paling, iron fencing, etc., and Messrs. Rowland Bros. (Fenny Stratford) exhibit of wood gates, oak pale fencing, barrows, etc.

We now ascend to the Gallery, and for convenience will consider the general exhibits in the catalogued order, although this is not the best order in which to inspect them. At No. 21 Messrs. G. & A. Brown have a very good show of modelled and enriched plaster ceilings, friezes, and other decorative work, in addition to wall-panelling, mantels, etc. The Trading & Manufacturing Co. exhibit various kinds of filing cabinets, and Messrs. C. B. N. Snewin & Sons have a large stack of hard and soft woods in the rough, together with polished specimens. Six stands (No. 25 to 30) are occupied by the interesting and varied exhibits of the Art Pavements & Decorations, which include mosaics in marble, ceramic cubes and glass, terrazzo, marbles and marble masonry, tiles, parquetry, and joinery; about 200 varieties of marble are shown, including small and large polished slabs, balustrades, shafts, and two large columns of verde antico; the oak mantel-pieces, marqueterie inlays, and other wood-work are well worth inspection. At the next stand Messrs. W. Carson & Sons exhibit their well-known paints, varnishes, etc., and following this are the electric-wire conduits and fittings made by the Armorduct Manufacturing Co., and the salt-glazed stoneware drain-pipes and fittings, sinks, briquette and faience fire-places and other manufactures of Messrs. James Oakes & Co. At No. 1 there is an exhibit of parquet flooring and other wood-work by Messrs. Damman & Co.; at No. 2 a wall-ventilator is shown by Mr. W. Edwards (Milford, Surrey), and at No. 3 are blue and red bricks and other clay-ware by the Elstree Brick & Tile Co. (Elstree, Herts), the Stoney Lane Brick Co. (Nottingham), and the Erewash Valley Brick, Pipe, & Pottery Co. (Nottingham), Mr. L. Soman shows the "Conus" gas self-lighter and other incandescent-gas appliances, and Mr. J. Percy Day shows the "Eubololith" flooring, which is laid *in situ* on concrete, and resembles cork-carpet. The "Podmore" high-power incandescent lamps and other lighting appliances are shown by Messrs. A. E. Podmore & Co.; bricks, tiles, and other building materials by Mr. J. F. Waycott; stencils, incised fascias, stall-boards, wood and brass letters, etc., by Mr. F. W. T. Hall; fibres and packings of various kinds by Mr. D. B. Hooke; sliding and reversible sash windows by Messrs. W. G. & L. England (Barnsley); shingles, sand, etc., by Messrs. W. & G. Brice (Rochester); colouring materials by Messrs. Brand & Co.'s Successors; ordinary bricks, tiles, ridges, etc., by Mr. J. W. Briggs (Barton-on-Humber); and Portland cement by Messrs. Casebourne & Co. (West Hartlepool). At No. 20 the Perfector Window Co. show Caunt's patent sliding reversible windows, the sashes being pivoted on sliding side-stiles. Mr. Edward Leigh (Croydon) exhibits a simple and economical "safety" ladder-bracket, and the Globe Tank and Hurdle Co. (Wolverhampton) show fixed and rotary screens, tanks, etc.; and some ugly sheet-steel chimney cowls are shown by Mr. E. G. Wright (Guildford). At 23A Messrs. G. Shrewsbury & Co. exhibit the "Calda" water-heaters for baths.

Passing some minor exhibits, we come to the interesting stand of Messrs. A. Auberlet & Son, containing a finely-designed and well-modelled mantelpiece, and other decorations in fibrous plaster and cartonpierre, which are evidently the work of French artists. The wood-preserving stain, "Solignum," is shown by Messrs. Major & Co. (Hull), and billiard tables and accessories by Messrs. Orme & Sons.

The remaining exhibits in the Gallery are separately catalogued as the "Surveyor" Section, and it may be convenient to classify them to some extent according to their nature. Paving materials, including setts and road metal, are shown by the Dean Coverack Quarry Co. (St. Keverne, Cornwall), Messrs. Brookes's (Halifax), the Mountsorrel Granite Co. (Loughborough), Messrs. John Wainwright & Co. (Shepton Mallet), the Clee Hill Granite Co. (Ludlow), Messrs. Darbishires (Penmaenmawr), the Clee Hill Dhu Stone Co. (Ludlow), Messrs. Field & Mackay (Ludlow), the Grey Royal Granite Sett Co., Blichfeldt & Co., and the Road Maintenance & Stone Supply Co. (Gravesend). There is an interesting exhibit (No. 18) of limestone and Kentish ragstone tar-paving and tar slag macadam in various stages of manufacture by Messrs. Constable, Hart & Co.; tar-paving is also shown by Messrs. A. C. W. Hobman & Co. at No. 9, and by the Erimus Slag Paving Brick Co. (Middlesbrough), and Trinidad asphalt pavement-blocks by the Sanitary Block & Tile Pavement Co. Artificial stone paving slabs are exhibited by the Hard York Nonslip Stone Co. (Halifax) at No. 5, the Patent Victoria Stone Co. (Nos. 1 to 4, Rows B and C), Messrs. John Ellis & Son (Leicester) at Nos. 14 and 15, the Preston Granite Concrete Co. (Preston) at No. 9, Row D, the Imperial Stone Co. at Nos. 24 and 25, and the Patent

Artistic & Artificial Stone Co. (Leicester)—but what "artistic" has to do with the destructor-refuse slabs exhibited we fail to see. Ornamental artificial stone is shown at No. 8 by the Empire Stone Co. (Leicester), and by the Patent Victoria Stone Co., the latter having a large exhibit. The Limmer Asphalt Paving Co. must also be mentioned.

Timber and wood-paving and flooring are represented by the interesting exhibits of the Timber Corporation, Millar's Karri & Jarrah Co., the Acme Flooring & Paving Co., and the Wood-Paving Expansion Channel & Pin Co. Messrs. Hughes & Stirling show a model of their "Sterling" refuse-destructor; the Horsfall Destructor Co. (Leeds) exhibit a complete set of ironwork tor one destructor; models of their regenerative refuse-destructors are shown by Messrs. Meldrum Bros. (Manchester), and others by Messrs. Heenan & Froude (Manchester). Sewage purification plant of various kinds is exhibited by Mr. Frank Candy, the Patent Automatic Sewage-Distributors, Messrs. Ham, Baker & Co., Messrs. Geo, Jennings, Messrs. John Smith & Co. (Carshalton), and Mr. H. Birch Killon (Manchester). Drain-pipes and traps and other drainage fittings are shown by Mr. Vernon Parker, Messrs. Freeman & Hines, the Ames-Crosta Sanitary Engineering Co. (Nottingham)—a good and varied exhibit—the Union Pottery (Ashby-de-la-Zouche), Messrs. John Hirst & Son (Cleckheaton)—a new "shoot" for receiving waste-water—Messrs. Ingham's Firebrick Co. (Dewsbury—the inspection and distributing chamber with three outlets and penstocks is well worth notice, and the white glazed sinks and bricks appear to be of excellent quality), Messrs. George Waller & Son (who show among other things the Bexley cesspool-emptier), Messrs. Burn Bros. (who have a varied selection of iron drainage goods), and Messrs. Yarrow & Co. (Bolton).

There are also a number of exhibits of dust-vans, street-watering vans, etc., by Messrs. William Glover & Sons (Warwick), Messrs. W. Constable & Son, Messrs. Chalmers & Co. (Redhill), Messrs. George Rowe & Son, and Messrs. Thomas Baker & Sons (Compton, Berks.).

Of particular interest to architects and surveyors is the zinc process of Messrs. Vincent Brooks, Day & Son, for reproducing drawings and tracings without altering the scale.

Machinery and Concrete-Steel.

Although not very perceptible on casual inspection there is a good deal of machinery scattered among the various exhibits in this year's exhibition. Entering the building by the arcade the visitor will find a small but interesting exhibit by Messrs. Babcock & Wilcox (Stand No. 6), including models of their patent water-tube boiler and mechanical chain-grate stoker for the smokeless consumption of low-grade fuels. These are so well known that detailed description is unnecessary. This firm also exhibit a useful type of tube cleaner for removing incrustation from boiler, economiser, or other tubes, and a model of Guttmann's patent water-softening and purifying apparatus. Along the wall near the entrance to the main hall Messrs. Crossley Bros. have a stand (No. 121), on which may be seen several types of gas and oil engines for electric-lighting purposes. One of these, combined with a dynamo, is used for lighting their own stand, the engine being capable of developing 14·5 b.h.p. An oil engine, combined with dynamo, forms a lighting set of a type which should be found very convenient for the requirements of private houses, business premises, and small isolation hospitals. The exhibit includes two other gas engines of 1b.h.p. and 10 b.h.p. respectively, and a small suction gas plant. On the next wall space (No. 122) Messrs. J. B. Stone & Co. have a comprehensive display of wood-working machinery, comprising chain saw and pulley mortising machines, dovetailing machines, sand-papering machines, door and sash clamping machines, window-frame machines, and other special appliances for joinery work. The "Lockman" four-spindle carving machine is an apparatus to which special attention may well be directed. Messrs. Sutcliffe, Speakman & Co., of Leigh, Lancashire (No. 126), show a collection of brick-making machinery, including an improved type of pug-mill with crushing rollers, a cutting-off table with patent self-lubricating push-board, a Dawber's patent pug-mill mixer with shredding knife, and a toggle lever, double-pressure brick press with oil engine attached; this machine being shown in motion. Their exhibit also includes specimens of lime-sand, gas lime, clinker, and breeze bricks. A little farther along the wall (No. 127) will be found the "Harman" electric hoist, specially designed to meet the requirements of the building trade. This apparatus is made in two sizes, one to lift 8 cwt. and the other to lift 1 ton, the smaller size only being on view in the present exhibition. The dimensions of the machine are 4 ft. 3 in. by 2 ft. 3 in., and its total weight is 7 cwt. It is fitted with a 3 h.p. semi-enclosed electric motor, controller, main switch, and cut-outs. The gearing is of worm type and has ball thrust bearings, the whole being enclosed in a dust-proof case and running in an oil-bath. Messrs. J. Sagar & Co., of Halifax (No. 129), exhibit wood-working machinery in great variety, one of the most noteworthy appliances being a new pattern builder's power mortising and boring machine, with compensating connecting rods for letting the chisel gradually into the mortise. This will take timber up to 12 in. by 5 in., mortising up to 1¼ in. wide, and boring holes up to 1¼ in. diameter. Here also are to be seen a "Premier" planing-out-of-twist, jointing, squaring-up, and thicknessing machine, with hand or power feed, and a vertical spindle moulding and shaping machine for working with the cutters through the spindle in the French style. On Stand No. 133, Messrs. Kirchner & Co. have a selection of sawmill and wood-working machinery, among which is a new pattern hand planer, moulder and variety wood-worker — an extremely handy and thoroughly well-made appliance. A new patent band-saw and improved grinding and sharpening machines are also shown on this stand. Messrs. F. W. Reynolds (No. 135) do not exhibit anything of particular novelty, but their selection of wood-working machinery includes examples of machines of all kinds required by the builder, joiner, and contractor. Messrs. George Anderson & Co., of Carnoustie, N.B. (Nos. 138-9), show a patent granite and marble dressing machine, the essential principle of which is the combination of a small diamond saw with an abrasive disc. The table on which the stone or marble is fixed traverses to and fro like the bed of a planing machine, and is brought in contact with the discs (running at about 2,000 revolutions per minute), with the result that the required mould is speedily formed. To permit the best results to be obtained the table is made so that it can be worked at different speeds, and is so arranged that work of any description can be done upon it. The same firm also exhibit a new type of tubular crane for builders, designed with the object of avoiding mishaps through the dropping of the jib or the load. The tubular form of construction has been adopted for the sake of reducing weight, this being an important consideration in connexion with cranes intended to be used on the top of buildings. On Stand No. 143 are several types of brickmaking machines by Messrs. C. Whittaker & Co., of Accrington. One of these is a semi-plastic repress brickmaking machine, of solid construction, specially adapted for the manufacture of white and buff bricks, as no oil is required to lubricate the dies and so to cause discoloration of the product. This machine is capable of turning out 6,000 bricks daily. Another machine of interest is an improved plastic brick machine, built upon a massive cast-iron bed plate so as to insure rigidity. This machine is capable of producing 25,000 bricks daily. The same firm show a power press for re-pressing plastic bricks, and a specimen of the "Adams" piano wire screen for clay and other materials. Messrs. R. Becker & Co. (No 144) exhibit several types of Kiessling's wood-working machines, most of which are already familiar to our readers. Special mention may be made, however, of the "outside" four-cutter moulding machine shown this year. All the cutter blocks are easy of access for fixing and adjustment, and safety guards are provided with the machine, which appears to be well adapted for the production of high-class mouldings.

Messrs. Bilbie, Hobson, & Co. (No. 146) confine attention to the exhibition of a 40 b.h.p. Stockport gas engine, of new design and fitted with an improved arrangement of valves and a patent horizontal ball governor. A new pattern of Murray's brickmaking machine is shown by Messrs. T. Middleton & Co., Ltd. (Bay No. 1). Two sizes of this machine are on view, one for an output of 20,000 to 25,000 bricks daily, and the other for an output of 10,000 bricks in the same time. In Bay No. 2 the Fireproof Co. illustrate the adaptation of their dovetailed corrugated sheeting, as used in conjunction with H, T, and U sections, and plastic materials for forming fireproof floors, ceilings, and partitions. The exhibit shows fireproof partitions for curved, straight and irregular work, staircases and lift enclosures, curved and irregular roofs and ceilings, fireproof floors of dovetail sheeting and concrete, suspended and other forms of fireproof ceilings, as well as girder and stanchion casings for protection against fire. In Bay No. 4 Messrs. Barrows & Co., of Banbury, have a very compact portable steam engine, mounted on wrought iron travelling wheels and fore-carriage, and fitted with a pulley for driving a mortar-mill or other machinery. They also show a portable undergeared mortar-mill, with 6-ft. diameter pan, combined with a vertical steam engine and boiler, the whole mounted on rolled steel girder frame and travelling wheels. Messrs. James Stott & Co. (Bay No. 5) present a good display of ventilating appliances, including electrically-driven, belt-driven, and water-driven fans, and wall and roof ventilators. Their instantaneous water-heater, for the supply of water at any required temperature up to boiling-point, is a most useful apparatus for public institutions, laundries, and manufactories. As originally devised by Major Ballantine, of Manchester, the apparatus consisted of two valves—one for cold water and the other for steam—with a mixing chamber filled with washed gravel. It is now produced in an improved form, with adequate safeguards against the passage of free steam through the outlet intended for the discharge of hot water. Brickmakers and contractors generally will find several things of interest in Bay No. 7, where Messrs. Hugh Reid, Griffin, & Co. display various types of brick cars, tip waggons, a wrought-iron turntable, switches, and sundry requisites for contractors' railways. As usual, Messrs. Orenstein & Koppel exhibit an extensive range of contractors' plant. Their stand, covering Bays Nos. 9, 10, and 11, contains examples of a portable railway track installation, switches, turntables, steel tipping waggons, brick-drying cars, cars for green bricks, a portable concrete mixer, steel crane skips, and other apparatus of useful character. Messrs. Swinney Bros., of Morpeth, show three revolving pan mills, one with a 4-h.p. engine attached. A special feature of these mills is the segmental bottom, which can be replaced when desired by a perforated bottom for crushing brick and other material used for concrete-making. Another advantage is that any one of the segments can be removed and renewed in case of breakage. The National Gas Engine Co. exhibit a compact electric-lighting set, consisting of a 8-h.p. "National" gas engine direct-coupled to a continuous current dynamo, the output of the set being sufficient to provide for an installation of eighty 16-candle-power incandescent lamps. A new type high-speed electric-light gas engine of 1¾ brake horse-power is to be found on the same stand, this machine being intended for private house lighting installations. In Bay No. 15 Messrs. E. Page & Co., of Bedford, have a small selection of brick and tile machinery. One of the machines in question is suitable for making round, egg-shaped, or octagonal pipes up to 6 in. diameter, plain and corrugated tiles, and solid, perforated, or tubular bricks. The cutting-off table is adaptable for tiles or bricks, and can be adjusted for cutting the material into different lengths. The machine can be worked by one man, and the output is stated at 6,000 2-in. round pipes per day of ten hours. A newly-patented press for wire-cut or sand-faced bricks, and all kinds of roofing tiles, is also shown, this being a compact portable hand-power machine. In Bay No. 16 we find three sizes of the "Augur" three-process brick machine, made by Mr. F. A. Smith, of Reading. This type of machine is specially designed to deal with stiff plastic clays, and the chief points claimed in its favour are economy of power, simplicity of design, and solidity of construction. We can pronounce no opinion upon the first of these claims, but the two latter are sufficiently justified by the machines exhibited.

In addition to the ventilating fans mentioned last week, Messrs. Matthews & Yates, of Swinton, show a refuse-collecting apparatus for use in saw-mills and joiners' shops. This exhibit shows the exhauster picking up the refuse and depositing it after being passed through a separator. The apparatus includes a "Cyclone" exhaust fan, driven by a "Swinton" electric motor of the enclosed type.

Mr. Arthur Koppel has two stands, one in Bays Nos. 22, 23, and 24, and the other in the Minor Hall. The chief objects exhibited are portable railways, tipping waggons, brick cars, an excellent variety of concrete mixer arranged to run on rails and fitted with a self-contained petrol motor, water-softening plant in operation, and a "hydroleum" patent locomotive, running upon a track which extends entirely round the Minor Hall. In this part of the building is a useful appliance, made by Kennedy's Patent Bending Machine Co., for cold bending tubes to any required angle. The machine consists of a circular cast base, with a smooth face forming the lower flange. The upper flange rises and falls upon a mandril projecting in an upward direction from the centre of the base, the distance of the flange being adjusted in accordance with the size of the tube to be bent. A stop attached to the base serves to hold the tube while being bent, and as it is in contact with the upper and lower flanges during the process of bending, any tendency to bulge or flatten is prevented. A hand lever radiating from the centre of the mandril enables the operator to bend the tube to the required angle, pressure being applied close to the central mandril. A pin on the same lever enables the operator to adjust the upper flange tightly before bending, and to release the pressure afterwards. Another attachment upon the same lever is a swivel shoe, which, being adjusted against the tube, insures a true set. Several ingenious pieces of mechanism are exhibited by Recorders Limited at Stand No. 5 in the Minor Hall. One is a "Rochester" car-recorder, registering the time of workmen for a week or a fortnight, thus obviating the necessity for transferring the time to a wages sheet. Another is a "Bundy" card recorder, furnishing a printed record of the exact time at which employees arrive and depart. The "signature" recorder is a device specially suited to office requirements, as it provides for registering the time at which all signatures are made by clerks on arrival and departure. The "journey" recorder gives a history of the daily journeys made by any vehicle to which it is attached, showing the time of starting, the duration of all stoppages, the distances traversed between stoppages, the total distance, and the time of arrival home. The "speed" indicator is an instrument intended for use upon motor vehicles, and a kindred apparatus is a combination of speed indicator and recorder, giving a record of the varying speeds attained during the day, the time and duration of stoppages, and the total distance traversed. Messrs. Henry F. Joel & Co. show several sizes of their "Zone" electric motor and dynamo, this type of machine representing an entirely new departure, as only one magnetising coil is employed, thus reducing cost and increasing efficiency. The last stand we shall mention in the Minor Hall is that of the Kleine Patent Fire-Resisting Flooring, which was fully described in our issue of September 3, 1904. This is really a form of reinforced brick construction, and although comparatively new in this country, it is said that more than 7,000,000 sq. yds. of it have been built abroad.

Turning to the rows occupying the central portion of the Great Hall we may notice in passing a useful form of belt-fastener made by the Clipper Belt Hook Co., of Manchester (No. 19). Messrs. A. C. Potter & Co. (No. 23) show various details of artesian well pumps and appliances, and a direct-acting steam engine suitable for pressures up to 200 lb. per sq. in. Mr. James Oates, of Huddersfield (No. 24), exhibits the "Empire" and "Express" trimming machines in operation, and on stand No. 39 are examples of passenger and dinner lifts by Medway's Safety Lift and Elevator Co. The gear of the passenger lift is operated by means of a hand-switch inside the car, and the apparatus includes over-travelling and slack-rope devices. Messrs. Howard Brothers' time register (Stand No. 46) is an apparatus for recording the time spent by workmen on particular jobs, in addition to the registration of time in the usual manner.

One of the most important exhibits is that of the Columbian Fireproofing Co. (No. 54). The floors designed upon the system of this firm are excellent from the standpoint of fire-resistance, but the form of steel reinforcement used is not the best from the point of view of the engineer, and the manner in which it is applied is not in accordance with the principles governing the design of concrete-steel structures. The only practical disadvantage, however, is that a certain percentage of the steel is wasted, namely, that which is situated at and near the neutral axis and in the compression areas of the beams and floor-slabs where reinforcement is unnecessary. Examples of concrete-steel pipes for drainage and water supply are also shown by the company, these pipes being constructed in accordance with the Bonna system.

Messrs. Hodkin & Jones, of Sheffield, exhibit examples of their fire-resisting floors, in which the concrete is reinforced by corrugated bars of steel. The bars are placed vertically, so as to pass from the tension area through the neutral axis to the compression area. This system represents a very poor attempt at concrete-steel construction, and one that cannot be recommended. Messrs. Potter & Co. show a panel of their armoured concrete floor, which is formed by embedding thin steel tension rods every 3 in. or 4 in. apart in a flat floor slab of concrete. As the rods are corrugated, a good mechanical bond is secured against slipping. Two other interesting exhibits on the same stand are a specimen of a fireproof floor with steel cradling and lathing for enclosing steel beams, and a concrete-steel lintel, which has been subjected to a load of 10 tons.

Messrs. Joseph Richmond & Co. (No. 81) devote attention chiefly to electric lifts. A 3-in. scale working model of the Richmond-Carey automatic lift shows systems of operation suitable for both passenger and goods lifts, obviating the necessity for an attendant and insuring absolute safety, so far as this is possible with any mechanism. A continuous-running service lift is also in operation, running to the roof of the hall, and there are working models of three types of hand-lift.

Stand No. 82 consists chiefly of the complete framing for a building by the New Expanded Metal Co. No material is more suitable for the reinforcement of concrete than expanded metal, and the framework here erected serves as an excellent demonstration of the manner in which expanded metal should be applied in wall, floor, ceiling, and roof construction.

The exhibit of Messrs. Powers & Deane Ransomes (No. 111) includes numerous sections of structural steel, and a section of their sound and fire-proof flooring showing tiles and joists with concrete filling, and a layer of impervious flooring over.

In the Gallery, Machine Sculpture, Ltd. exhibit a "Wenzel" sculpturing machine at work, carving various materials of different degrees of hardness. This machine has been largely adopted by the stone and wood carving trades on the Continent, and should be found extremely useful for the rapid and economical production of ornamental details for buildings. The greater part of the Gallery is occupied by "The Surveyor" section of the exhibition, a department largely devoted to the manufactures of firms catering for the requirements of municipal and other public authorities. Messrs. Hughes & Stirling exhibit models of their refuse destructor; the Horsfall Destructor Co., of Leeds, present a complete set of ironwork for one of their furnaces; Messrs. Meldrum Brothers, of Timperley, have on view models of regenerative refuse destructors, and Messrs. Heenan & Froude, of Manchester, exhibit models and parts of refuse destructors and mechanical draught plant. Mr. Frank Candy devotes his stand to mechanical filters, in which the purifying agent is polarite, to a filter for sterilising water by a new process with metallic copper, this metal being afterwards removed and recovered from the water during the process of filtration, and to his automatic regulator for distributing water for irrigation purposes and for controlling compensating waters. Water purification and sewage apparatus are also exhibited by the International Purification Syndicate, the Patent Automatic Sewage Distributors, and other firms. A demonstration of several types of pneumatic tools is given at the stand of the Consolidated Pneumatic Tool Co., where may be seen hammers specially arranged for stone carving and monumental work. Messrs. W. Glover & Sons, of Warwick, exhibit three small petrol engines suitable for driving light machinery, in addition to vans of the type with which their name is associated.

Jonet's safety water elevator, exhibited by the Safety Water Elevator Co., of Dunstable, is a well-gear designed to supersede the old-fashioned windlass, and to cover open wells, thereby protecting them from pollution by the accidental introduction of animal and vegetable matter. The apparatus consists of a cast-iron plate covering the well opening, and above which is placed a galvanised steel dome perforated at the top for the purpose of ventilating the well. Inside the dome is a shaft and differential pulley, on which works a steel wire, from each end of which a bucket of special design is suspended. The buckets rising alternately into the dome are automatically emptied, and discharge their contents through a spout.

Electric light fittings were shown by the Armorduct Manufacturing Co., Ltd., only. The various types of conduit and the fittings suitable for this method of wiring will be found instructive by those who are not familiar with pipe systems of wiring.

In connexion with putting up steel conduits attention may be drawn to Kennedy's patent bending device shown in the Minor Hall. We were favourably impressed with the ease with which piping could be bent into any shape.

The exhibit of "Zone" motors and dynamos by H. F. Joel will be found of great interest to electricians. The method of constructing electric machines with a single magnetising coil only was absolutely new to us. An inspection of this exhibit will well repay the electrician.

There are several very good exhibits of electric lifts and hoists. Messrs. J. Richmond & Co. show a very instructive model of their new automatic push-button lift, which we recently described in these columns. As they have now fitted up several of these lifts in London, and we have used one several times, we see no reason to alter the favourable impression produced by a study of their patent specification. They show wrought-iron gates of novel design for use with their lift. The gates take up very little room, and will be suitable when the space on the landing is limited. They are furnished with an automatic locking gear. A continuous service lift running up and down to the roof of the hall is ingenious, and is an effective method of advertising.

The exhibition of electric lifts and appliances by Messrs. Waygood & Co. is very interesting. They show a model of their well-known automatic push-button lift. Their automatic electric dinner lift is very simple, and should not easily get out of order. Messrs. Medway & Co. have also a good electric exhibit. The hand-switch for use inside their lifts is particularly simple.

THE CASE OF GIBBON *v.* PEASE.

WE take the following pithy comment on the above case from the *American Architect and Building News*:—

"There must have been something thoroughly unfortunate in the words or the manner of the counsel who presented the early pleadings in these architect's drawings cases. The attitude, manner, and words of the court testify to an impatient intolerance that seems to indicate that the court's temper had been unnecessarily ruffled. This is unfortunate, of course; and more than this, it seems to us it must have been quite unneeded, for the case suggests that had the simple *argumentum ad hominem* been used the result would have been different. There are distinct points of resemblance between the services rendered by an architect and by a lawyer. In each case the client pays the professional man merely to produce a result—by what means is immaterial and unstated—in one case to create a structure and in the other to win a suit. The lawyer after winning, or losing, his case, never thinks of handing to his client with his bill the brief and pleadings he has used. No, these are neatly docketed and then dropped into the tin box marked with the client's name and stored to gather dust on the lawyer's shelves. Why, then, should the lawyer, when his time comes to sit on the bench, require the architect to deliver over to his client the brief and pleadings—the drawings that is—of which the architect had made use? One would think that the analogy must be apparent even to the legal mind and also the greater commercial injustice of the requirement. The lawyer would rightfully decline to surrender his papers—there is matter therein that may be of service to him later—and yet those particular pleadings would in all probability never be of use thereafter to his client, even be he never so litigious. On the other hand the court requires an architect, who has agreed to perform only a single service, for which service alone he has been paid, to surrender material which enables the duplicating of the service by the client, if he chooses, innumerable times. . . ."

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE Annual General Meeting of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street. The report of the Council for the official year 1904-1905 was submitted and discussed. The report stated that the present subscribing membership of the Institute is 1,904, *i.e.*, 677 Fellows, 1,182 Associates, and forty-five hon. Associates, compared with a total last year of 1,829. During the official year since the last Annual General Meeting fifty-seven Fellows have been elected, sixty-five Associates, one honorary Fellow, and three honorary Associates.

Examinations, etc.

The Progressive Examinations were held in June and November, 1904. The Preliminary was held in London, Belfast, Birmingham, Bristol, Cardiff, Exeter, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, and York; the Intermediate in London, Belfast, Bristol, Glasgow, Leeds, Manchester, and Newcastle-on-Tyne. The Final and Special Examinations were held in London. The number of probationers now stands at 2,305, and of students at 582. The Council regret that so large a number of students remain on the list without proceeding to the Final Examination. The Council, on the recommendation of the Board of Examiners, have given authority to the Institute of Architects of New South Wales to exempt properly qualified candidates from the Preliminary Examination of the Royal Institute, and as a result seven gentlemen residing in Sydney were duly registered as probationers in June last. The first Intermediate Examination held out of the United Kingdom took place last November in Sydney, when three candidates were examined. The Special Examination for Colonial candidates will be held this year in Canada and Sydney.

The annual dinner was not held last year. It will take place this year on Friday, October 13, in Newcastle, under the auspices of the Northern Architectural Association. An interesting programme for the visit will be arranged, and the Council hope that many members will see their way to attend.

Registration.

The Registration Committee appointed last session, and constituted as described in the last annual report, began their labours too late in the session for any effective result, as the Council elections in May very considerably changed the *personnel* of the Committee. The new Committee early in the present session appointed a sub-committee, which has met monthly, holding morning and afternoon sittings. A Bill for the Enrolment of Qualified Architects prepared by the Sub-Committee with the assistance of counsel has been considered by the General Registration Committee, who have referred it back to the Sub-Committee for emendation. The Registration Committee hope to submit it for the adoption of the Institute at an early general meeting.

Education.

It was mentioned in last year's annual report that the Council had under their consideration the proposals of a committee on Architectural Education consisting of members and non-members of the Institute which they had appointed. The Council have approved of these proposals, and have established a Board of Architectural Education with a mandate to prepare a scheme for the co-ordination of architectural education throughout the country, and to secure, if possible, its adoption in the various schools. Of this committee Sir Aston Webb, R.A., is Chairman, Mr. Basil Champneys Vice-Chairman, Mr. John Slater and Mr. Reginald Blomfield, A.R.A., Hon. Secretaries. It consists of 'members," who are all architects, and "advisory members," who are representatives appointed by universities and other educational bodies. The first portion of the task has been accomplished by the Board, which is now laying the scheme before the teaching centres of the country with a view to its adoption.

Public Works and Municipal Officials.

A memorial setting forth the disadvantages to the community of municipal officials being entrusted with the design and execution of architectural works was sent in November last to all the county councils, municipal councils, and district councils of the United Kingdom. The Council, although aware of the improbability of the principles stated in the memorial being at once adopted by municipal bodies, yet entertain the hope that the prominence with which this important question was brought before them will have considerable influence for good.

The London Building Act.

The Council have appointed a committee, consisting of a sub-committee of the Practice Committee, the Chairman and Hon. Secretary of the Science Committee, the Hon. Secretaries of the Art Committee, and Mr. Lacy W. Ridge, to consider and report to them on all matters connected with the London Buildings Acts (Amendment) Bill now being promoted in Parliament by the London County Council. The Council, adopting the recommendation of the Committee, decided to oppose the Bill in Parliament. A petition was deposited, and Mr. Pembroke Stevens, K.C., and Mr. H. Courthorpe Munroe were retained as counsel. The Committee drafted a detailed criticism of the Bill as instruction to counsel when the Bill should reach the Committee stage in Parliament. Prior to second reading, however, the London County Council dropped the greater portion of the Bill, retaining only the clauses relating to the prevention of fire. The new Bill when received will have the Committee's attention.

Easement of Light Bill.

The judgment of the House of Lords in the case of Colls *v.* The Home and Colonial Stores induced the Joint Committee of the Institute and the Surveyors' Institution to drop Part III. of the Easement of Light Bill which dealt with this subject, and also the only other clause relating to a change in the law, *i.e.*, Part V., headed "Right to Light Passing over Streets," and the councils of the two bodies have approved the omission. The Bill as now about to be introduced into Parliament by Mr. J. Fletcher Moulton, K.C., M.P., is a Bill of Procedure, providing a simple machinery for the settlement of disputes on the lines of that already organised with regard to party-wall cases.

Board of Professional Defence.

Until last session the Council had strictly observed the principle of limiting their advice on professional matters to such cases as were not of a purely legal character. Having, however, considered that it might be advantageous to members if this limitation were modified, the Council have constituted a Board of Professional Defence to consider cases of broad professional interest, to give advice, and, subject to the approval of the Council, to take counsel's opinion on any point, and, if necessary and desirable, to support the architect's case, financially or otherwise, in a court of law. Up to the present time the cases that have come before the Board have not been, in their opinion, of such a nature as to warrant positive action on their part.

Chartered Societies' Protection Bill.

A Bill making it penal for any unauthorised person to use the title or distinctive letters of a chartered institution was introduced last session in Parliament, but dropped. It is again before the House this session. Nine chartered bodies, including the Royal Institute, are promoting the Bill.

Traffic Commission.

In accordance with the recommendation of the Art Committee mentioned in their last annual report, the Council have been in communication with the Royal Commission on London Traffic, urging that the views of expert architects be considered on the laying-out of street improvements. It being too late for evidence to be taken, the Commission have promised that the Council's request shall be borne in mind in the event of any definite scheme for the improvement of London streets being contemplated.

London County Council By-laws with Respect to Drains.

It was mentioned in the last annual report that the views of the Institute regarding the London County Council By-laws as to the deposition of plans with respect to drains had been communicated to the Local Government Board, the London County Council, and the London Borough Council. The Council, acting on the recommendation of the Practice Committee, have issued invitations to those of the borough councils who expressed themselves as being in sympathy with the Institute to join the Practice Committee in a deputation to the London County Council. The Surveyors' Institution has also been invited to send representatives.

Education of the Public.

On the suggestion of the President, the Council have appointed a small committee to recommend steps whereby the ignorance of the general public in architectural matters may be somewhat mitigated. The Committee have not yet issued their report.

Past Presidents' Portraits, etc.

The Council have had an album prepared containing photogravures of the interesting collection of the portraits of past Presidents. Blank plates have been left for the insertion of future portraits. The price of the album is two guineas.

The presentation of the portrait of Sir William Emerson by Mr. J. J. Shannon, R.A., will take place at an early date. The Council have the pleasure to state that Mr. Solomon J. Solomon, A.R.A., has kindly accepted the commission to paint the portrait of Sir Aston Webb, R.A., Past President.

Appointments, etc.

The Council, at the invitation of H.M. Government, suggested the names of seven architects for the proposed extension of the British Museum. Mr. J. J. Burnet, A.R.S.A., was the architect selected. At the request of the Minister for Foreign Affairs that the Council would advise him as to two architects whose names he might, in response to invitation, submit to the Dutch Government as fitting persons to be invited to prepare designs in an international competition for the Carnegie Foundation—"The Palace of Peace"—at the Hague, and as to a third who could serve on the International jury, the Council nominated the President, Mr. John Belcher, A.R.A., and Sir Aston Webb, R.A., to represent Great Britain in the competition, and Mr. T. E. Collcutt, Vice-President, to serve on the International jury. The Council have since learned, through the Genootschap "Architectura et Amicitia" of Amsterdam, that the Carnegie Foundation Commission have decided to throw the competition open to all architects, while at the same time specially inviting representative architects from the various countries to compete. Mr. W. H. Atkin Berry has been appointed as an additional representative of the Institute on the Committee of the Coal Smoke Abatement Society. The President and Mr. J. S. Gibson were appointed by the Council to represent the Institute on a deputation from various bodies to the Croydon County Council with regard to the proposed demolition of Whitgift Hospital, Croydon.

Bequests and Donations.

The Institute has received a bequest of 1,000*l.*, under the will of the late J. T. Wimperis, to be applied to the furtherance of architectural education or the interests of the Institute in any way that may seem good to the Council. Sir Aston Webb, R.A., has presented the Institute with nineteen shares, and Mr. J. Macvicar Anderson with twenty-four shares, in the Architectural Union Company, the income to be applied, at the discretion of the Board of Education, to the furtherance of architectural education. Since the issue of the last annual report the Council have made the following grants:—The Cretan Exploration Fund, 50 guineas; the British School at Rome, 20 guineas; the Manchester Society of Architects, 25*l.* for educational purposes. They have also voted a grant of 100 guineas towards the expenses of the defendant in the case Gibbon *v.* Pease with regard to the ownership of drawings lately heard before the Court of Appeal. They have further voted a grant of 500*l.* to the funds of the Seventh International Congress, London, 1906, the grant to be spread over two years.

Seventh International Congress.

The Council desire to draw the special attention of members to the importance of this Congress, which will be held in London from July 16 to 21 next year, and to express the hope that it will be loyally supported. To conduct this large undertaking on a scale worthy of Great Britain and British architecture will need considerably outlay, and the Council take this opportunity of expressing the hope that every member of the Institute will contribute to the funds by enrolling himself as a member of the Congress. Following the precedent of the previous six Congresses, there will be two classes of members—contributing members and subscribing members—whose dues are 4*l.* and

1*l.* respectively. The Executive Committee are in communication with all the architectural societies abroad and the various foreign sections of the permanent International Committee, and as soon as all the replies from these have been received will issue a more detailed programme.

Finance.

A statement of income and expenditure, and the balance sheet for the year ending December 31, 1904, and the estimate of income and expenditure for the current year are appended to the report. The balance of income over expenditure is 1,680*l.*, the largest on record, which the Council venture to think is a proof of the continued financial prosperity of the Institute. The Council have this year invested the sum of 1,500*l.* in the purchase of Cape of Good Hope 3½ per cent. stock and 1,000*l.* in the purchase of Great Northern Railway 4 per cent. Preference stock. The total invested capital of the Institute now amounts to 18,000*l.*

Reports of Committees.

Reports of the various committees then follow. The Art Standing Committee reported that during the session the Committee have held three meetings and have had under consideration the following matters:—The widening of Berwick-on-Tweed Bridge; the wood pediments and dome of Somerset House; the advertisement abuses on buildings; the Royal Commission on London Traffic. The matter of the widening of the fine old stone bridge at Berwick-on-Tweed has been again before the Committee, and by the courtesy of Mr. Reade Messrs. Reade & Riley's designs for the proposed works were laid before the Committee, and it was felt that the engineers had, on the whole, dealt satisfactorily with the difficult problem of widening an old structure. In some small matters of detail Mr. Reade kindly consented to consider the suggestions of the Committee, and to bring before it at a later date the detailed drawings for the proposed works. It was felt that the character and interest of the bridge had been safeguarded, and in some measure this had been done in consequence of the action of the Committee. With regard to the present wood pediments and dome on the centre part of Somerset House, fronting the river, the Committee felt that some action should be taken, and consequently forwarded a resolution to H.M. Office of Works that it was desirable to replace the present wood pediments and drum of the dome by Portland stone, carrying out the existing design. There are no apparent structural difficulties in the way of this being done, and it was considered that a more permanent material would harmonise with the monumental character of the buildings. Beyond a formal acknowledgment of the Committee's letter, no reply has been made by H.M. Office of Works, and it is felt that this matter is of such public importance as to warrant a further letter being sent to the Office of Works. The Committee forwarded to all the Metropolitan borough councils a communication respecting the abuse of advertisements on buildings with a view to enlisting their support and sympathy, and were gratified to have responses from ten Metropolitan borough councils expressing their sympathy with the objects in view; and a resolution was therefore sent to the London County Council drawing attention to the abuse of many buildings in prominent London streets by being disfigured with advertisements which were practically of a permanent character, and suggesting that the London County Council should obtain powers to prevent the disfigurement of streets and buildings by advertisements. With respect to the Royal Commission on London Traffic, the Committee suggested that in all future schemes of public improvements for London streets the Institute should be consulted at an early stage with respect to their architectural aspect and development, and it is satisfactory to note that the Royal Commission, in acknowledging the receipt of the suggestion, stated that in future works of this character the Institute would be consulted in the initial stages. Had this been done in the matter of the alignment of the north frontage of the Strand Improvement Scheme, it is probable that the view from the west of St. Clement Dane's Church would have been preserved; by proposed mutilation half of the west front of the church will be hidden by the new north frontage of the Strand; and it is deeply to be regretted that the advice of the Institute in this matter was not asked.

Among the matters reported on by the Practice Standing Committee were the new by-laws of the London County Council under the Metropolitan Management Acts Amendment Act, 62 and 63 Vict., c. 15:—"As stated in the Committee's report of last session, the Institute Council, on the recommendation of the Committee, by a circular letter called the attention of the various borough councils to the very onerous and unnecessary liabilities imposed on owners of property by these by-laws recently passed by the London County Council. Since the date of that report eighteen replies have been received from the borough councils addressed, of which nine are more or less in agreement with the Institute, four neutral, and five in opposition. The Committee have therefore recommended the Council to try to arrange a deputation of representatives of the borough councils, the Surveyors' Institution, and the Royal Institute of British Architects to attend on the London County Council and put forward their views."

The question of members of the Institute advertising in newspapers, as practised in some cases in the provinces, was referred by the Council to the Committee, who recommended the Council to take means to prevent or induce its members to discontinue this practice, which they considered derogatory and damaging to the status of the architectural profession. The question of members of the Institute describing themselves as "valuers" and "estate agents" in newspaper advertisements and elsewhere was also referred to the Committee, who reported to the Council that in their opinion nothing further than the description "architect" or "architect and surveyor" was consistent with the dignity of the profession.

The Council referred to the Committee a request by the Institute of Builders that provisions should be made in building contracts by which the charges of county and urban authorities as to extraordinary traffic on roads during building operations should be ascertained by architects previous to the making of contracts, and the liability removed from the shoulders of the contractors. The Committee, however, recommended to the Council that the suggestion should not be adopted.

The Science Standing Committee reported that they have been engaged on standardising the specification and tests for Portland cement, and that the Chairman has attended the meetings of the Joint Standard Committee, and the standard has been fixed and is now published. The Committee are now considering the tests that can be put in specifications when only small quantities of cement are required. The Committee are inquiring into the present method of applying Dr. Angus Smith's solution and other preparations for protecting iron. The Plumbers' Company submitted their second series of diagrams for the criticism of the Committee. The proposal to form a collection of building stones, with full information as to their nature, composition, etc., at the Museum of Geology, Jermyn-street, came before the Committee, and they have recommended the Institute to assist in collecting the information required. The subject of working loads and stresses has been under consideration. The report on the brickwork tests is in print and will shortly be published.

The Report was carried *nem con.*

WESLEYAN METHODIST CHAPEL, GRINDLEFORD.—A new Wesleyan Methodist chapel has been opened at Grindleford. The cost of the work was about 1,700*l.*, the builders being Messrs. Hill Brothers, Tideswell, and the architect Mr. Rowley, of London.

WESLEYAN CHAPEL, LLANDRINDOD WELLS.—The memorial-stone of a new Wesleyan Methodist chapel was laid at Llandrindod Wells recently. The building is designed in the Tudor Gothic style, and is faced outside entirely with Yorkshire stone. The tower and spire will rise to a height of about 200 ft. The church has a nave, aisles, and chancel, with organ-chamber. A ladies' parlour, which will seat seventy, and a ministers' vestry is also provided. The seating accommodation of the church is for 500, but the plan is so arranged that the accommodation can be easily increased to 800 in the future. The church and other rooms will be heated on the low-pressure hot-water system. It will be lighted by electricity throughout. The manse will contain dining and drawing rooms and study, with seven bedrooms and convenient kitchen arrangements. The architects are Messrs. Ewen Harper, of Birmingham, and the contractors Messrs. John Dallow & Sons, of Blackheath, Birmingham.

ARCHITECTURAL SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The annual general meeting in connexion with the Edinburgh Architectural Association took place on the 26th ult., in the rooms of the Association, 117, George-street, Mr. Harold O. Tarbolton, F.R.I.B.A., the President, in the chair. A vote of thanks was awarded to Colonel More Nisbett for permission to visit Drum House, Gilmerton, and to Mr. Hamilton More Nisbett for acting as leader on the occasion of the visit. Reports by the conveners of the various committees having been given in, office-bearers were appointed for the ensuing season. The elections included the following:—President, Mr. H. O. Tarbolton, F.R.I.B.A.; Past-President, Mr. A. Hunter Crawford, F.R.I.B.A.; Honorary Secretary, Mr. Colin B. Cownie; and Honorary Treasurer, Mr. Glassford Walker, C.A. Prizes in the associates' section were presented as follows:—Design for a Country House—1, Allan K. Robertson; 2, W. G. Walker Todd; and 3, A. Wilson. Design for a Screen Wall, with Side Porticos—Mr. William Wands. Design for a Font and Font Cover—G. Craston Blechynden. Entrance Lodge and Gateway for Country House (apprentices' competition)—1, D. J. Chisholm; and 2, J. Craston Blechynden. The President then delivered his valedictory address. Speaking of the position of municipal bodies with regard to public works, he said that as that kind of work involved grave interests of an artistic, practical, and financial nature, it was essential that the services of only properly trained and experienced architects should be retained. Architectural work should not be placed in the hands of engineers and surveyors, and the work of the official architect should be restricted to structures of secondary importance, all buildings of a monumental character being entrusted to independent architects, selected in such a way as might seem best to the local authority concerned. With regard to assessors in public competitions, Mr. Tarbolton said that the difficulty lay in the haziness which surrounded the position of an assessor. His duties were certainly ascribed, but there was no recognised rule as to the terms of his employment. He had no stated fees, and the large accounts which were frequently sent in by assessors had naturally frightened many who would willingly seek their assistance. Some clear definition of the obligations of assessorship was wanted. He thought the difficulties might be obviated if the Institute were to appoint a Competition Committee, drawn from its own body and the various allied societies throughout the country. The duty of such a Committee would be to examine competitive drawings and to give awards upon the same. This would encourage promoters of competitions to make these bodies their referees. He recommended the appointment of either three or five assessors instead of one, in which case the award would not only be more final, but would remove the tendency to play up to the idiosyncrasies of a single assessor, whose predilections for certain types of architecture might be well known. Referring to the question of monumental sculpture, he said that in countries where sculpture thrived more happily than in our own statues were seldom placed in the open. They were placed upon the sides of places of moderate size, and when so disposed as to get value from background, whether of stone or of vegetation, they gained vastly in effect. The statues in Edinburgh were invariably placed in an unfortunate position, as if merely dividing the lines of tramcars or other traffic. Alluding next to the ownership of architects' drawings, Mr. Tarbolton said that that was a matter of great importance. He took it that all architects were agreed that unless a special agreement had been arrived at, the client paid for a concrete result, and that the drawings prepared were only the customary means employed by architects for illustrating their ideas for the benefit of the workmen. As such, the client had no more right to them than he had to the architects' office materials. He could hardly find anything quite analogous in other professions. The question recurred again and again in the courts, and it still awaited some final settlement. He did not hesitate to admit the right of a client to the possession of any plans of a pictorial or sketchy nature prepared primarily for the client's benefit, but he did strongly dispute his right to demand the mechanical apparatus set in motion to give certain tangible results.

MANCHESTER SOCIETY OF ARCHITECTS.—At the annual general meeting of the members of this Society, held last week, the following

officers and members of Council were elected :—President, Mr. J. H Woodhouse ; Vice-Presidents, Messrs. C. H. Heathcote and J. W. Beaumont ; Hon. Secretary and Treasurer, Mr. Paul Ogden ; Assistant Hon. Secretary, Mr. George Brown ; Members of Council (Fellows), Messrs. John Ely, J. B. Gass, E. Howitt, Jesse Horsfall, A. H. Mills, J. D. Mould, Isaac Taylor, G. H. Willoughby, and P. S. Worthington ; (Associates) Messrs. Godfrey Colles, A. B. Corbett, and J. H. Gibbons, A.R.I.B.A.

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on the 1st inst., Mr. N. J. West, President, in the chair, a paper was read on "The Parade Extension Works at Bridlington," by Mr. Ernest R. Matthews, Borough Engineer of Bridlington, of which the following is a synopsis :—The author stated that the Royal Prince's-parade at Bridlington was constructed about thirty-five years ago, and, in view of public requirements, the Town Council in 1903 instructed him to prepare plans of an extension 40 ft. seaward and 212 ft. northward. It was also decided to demolish the Victoria wooden sea defences and to construct a low sea-wall, with terraces, promenades, and colonnades at the back. The contract for the works was let to Mr. George Bell, of Manchester, on his tender for 20,000*l.*, exclusive of a pavilion and other buildings to be erected upon the parade extension, which are to cost about 10,000*l.* more. The big sea-wall is 355 ft. in length, and the foundations and backing are of Portland cement concrete 6 to 1. The wall is faced with Bramley Fall rock-faced stone to match the old Prince's-parade wall. The new wall is greater in section than the old wall, and it is finished with a cornice and coping. The top of the new wall is 27 ft. 9 in. above the sand level, 29 ft. 9 in. above clay level, 34 ft. 7 in. above the bottom of the foundations, and 17 ft. 6 in. above high-water of spring tides, which reaches a level of 10 ft. above O.D. The bottom of the foundations is 7 ft. 6 in. below O.D. The wall in plan is somewhat of an elliptical curve. The concrete foundations were carried well down into the boulder clay ; that portion of the wall which is at the north end of the extension has a vertical face. All face joints in the walls are pointed with Roman cement ; 1¾-in. wrought-iron land ties are placed at intervals, and the filling at the back is chiefly sand taken from the foreshore ; 6-in. outlet pipes for surface water are built into the walls where required. The author gave the various arguments advanced by engineers in support of different forms of sea-walls, stating that in his opinion a stone-faced wall was the best form of construction. He then proceeded to describe the low sea-wall, which is 455 ft. in length, and is faced with Bramley Fall rock-faced stone and has concrete foundations and backing, as in the case of the big sea-wall. The height of the low sea-wall is 13 ft. above sand level, 16 ft. above clay level, 21 ft. 7 in. above the bottom of the foundations (these being 3 ft. 7 in. below O.D.), and 8 ft. above H.W.S.T. The author then described the special construction of the flights of steps leading on to the foreshore, together with the terraces, retaining walls, and other details. The terraces are paved with 2¼-in. non-slip flags laid on a bed of concrete. The retaining walls vary in section, but are mostly constructed with brick face and concrete backing, and are surmounted by stone coping carrying an iron railing. The total length of the retaining walls is about half a mile. The widths of the terraces are as follows :—First terrace (the bottom one) 25 ft., the second 20 ft., the third 22 ft., and the top one varies from 20 ft. to 47 ft. Two colonnades have been built on the upper terrace ; these are 76 ft. and 97 ft. in length respectively, with open fronts. The roofs are constructed of steel joists and concrete, the surface being covered with Limmer asphalte. The extended parade, terraces, and colonnades are lighted by electricity.

BAPTIST CHURCH, SLOUGH.—The new Baptist church, which has been erected in Windsor-road, Slough, was opened recently. Mr. R. W. Moore, of Bexhill, was the architect of the work, the contractor being Mr. H. Flint, of High Wycombe, whose tender amounted to 3,857*l.*

Illustrations.

COUNCIL CHAMBER, CARDIFF TOWN HALL.

IN this room the seating follows the lines of the architecture, and is arranged in three tiers, with a clear way all round. The portion behind the Mayor's chair is partially screened to form an ante-space, and the corresponding recess on the opposite side is filled with the public gallery.

The walls and ceiling are of painted plaster, and the panelling and seating of oak, with columns in Italian marble.

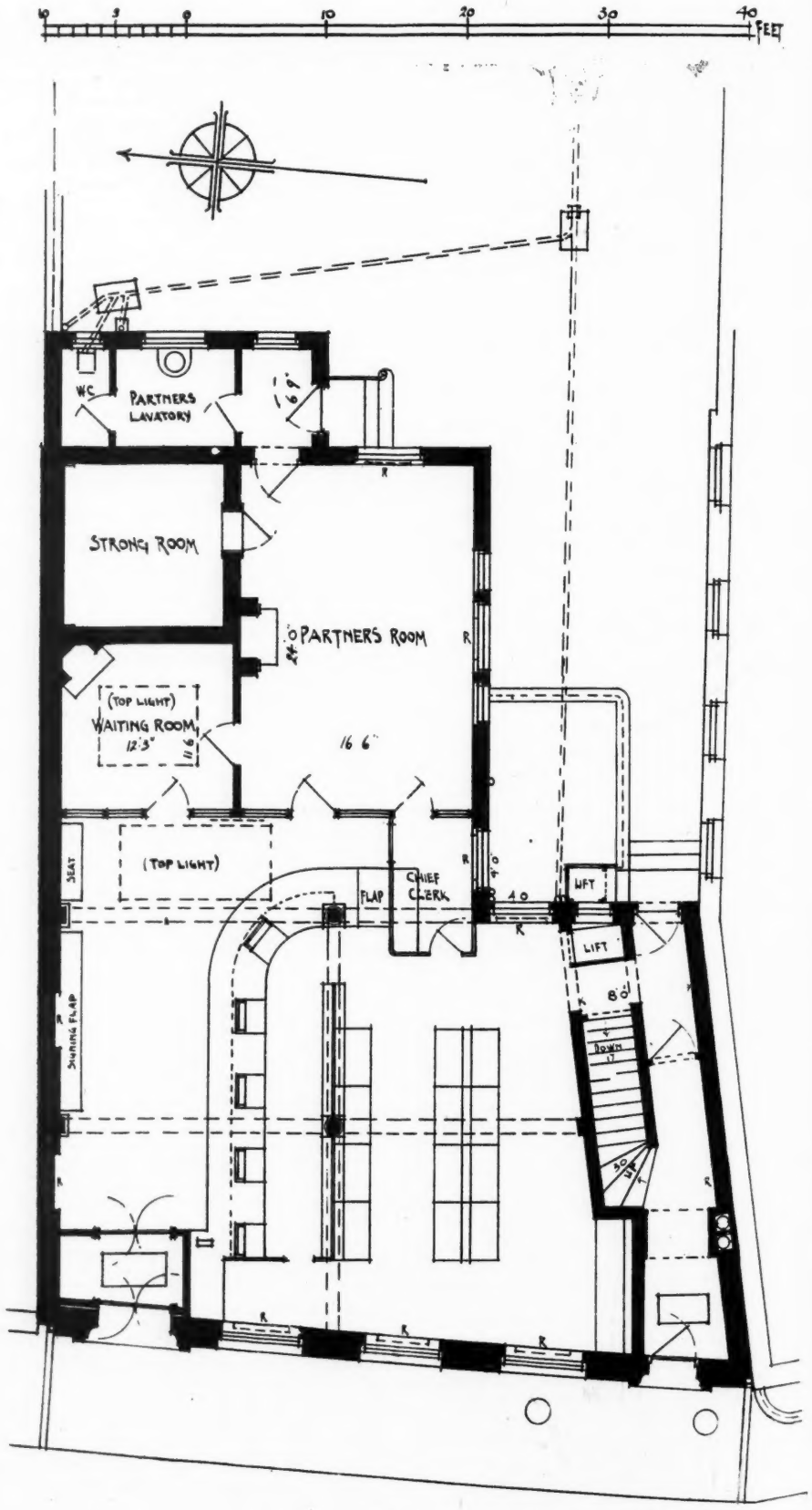
In addition to the lights shown, there is a large side window, which is the chief feature of the elevation outside ; this is to be filled with an architectural and allegorical design in the glass. Messrs. Lanchester & Rickards are the architects.

BARCLAY'S NEW BANK, CHELMSFORD.

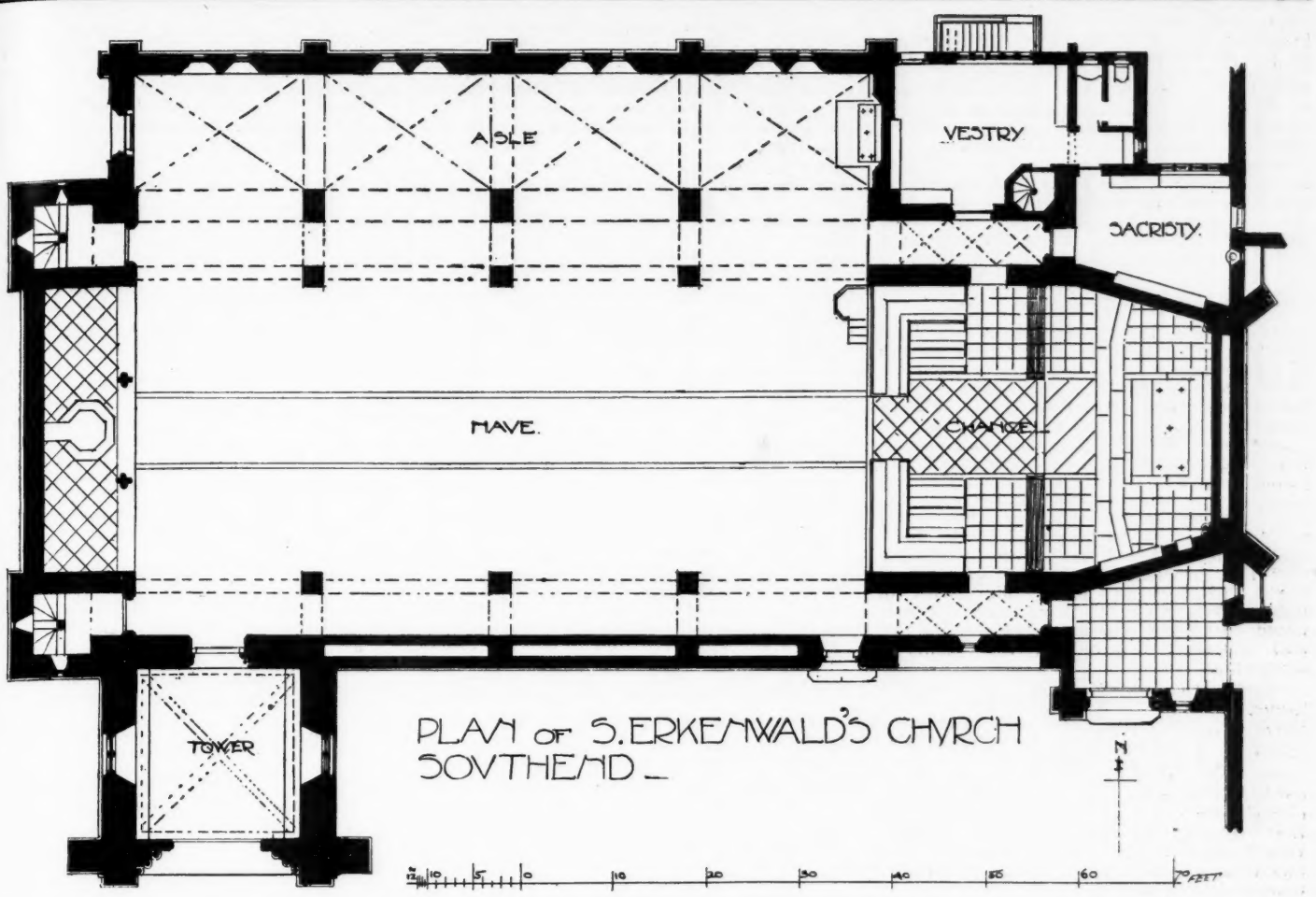
WE give the drawing of this bank which is at present exhibited at the Royal Academy. Mr. Arthur C. Blomfield is the architect.

The front is to be entirely of red purpose-made bricks ranging five courses to the foot. The entrances are in Portland stone. The capitals and cornice will be of wood, and will be painted white. The roof will be covered with green Westmorland slates. The ground floor accommodation is indicated by the plan. The basement will be occupied by strong-rooms and clerks' lavatories, the upper floors being occupied as a residence by the chief clerk.

The contractors are Messrs. Ashby & Horner, of Aldgate.



Bank, Chelmsford. Plan.



CHURCH, SOUTHEND.

We give this week an exterior and interior view and plan of the church of S. Erkenwald, Southend, the architect of which is Mr. W. J. Tapper, of London. The plan and views show the arrangement of the building.

THE OUT-VOLUNTARY.

This was really a first experiment with prepared charcoal (what the French call *fusain*), a drawing material I had not used before, but hope to do something more with eventually. It is a delightful material for effects of black and white, the black being an absolutely dead one, without the rather shiny surface of black pencil.

The sketch was sent to the Black and White room at the Royal Academy, but somehow has got hung in the Architectural Room instead, for which it certainly was not intended.

The musical quotation at the foot is from Bach's organ fugue in the Doric Mode.

H. H. Statham.

COMPETITIONS.

Hamilton Public Library.—The plans of this library have been approved by the Hamilton Dean of Guild Court. They have been prepared by Mr. Alexander Cullen, architect, and form part of the whole scheme of municipal buildings and town hall. The site is a commanding one in Cadzow-street. The library buildings are to be placed next the bridge, overlooking Cadzow Burn, and will consist of, on the ground floor, general reading-rooms and lending library. On the upper floor there will be reference library, ladies' reading-room, and lecture hall, while the basement floors will be utilised for storage and lavatory accommodation. The house for the librarian, and the work-rooms in connexion with the library, are placed on the north portion of the site.

New School at Taunton.—Twelve sets of drawings were received in this competition, and the design placed first is by Messrs. Bryan & Roberts, H. Dare Bryan, 5A, Waterloo-street, Weston-super-Mare, and F. W. Roberts, Hammet-street, Taunton. The second premiated design is by Messrs. Samson & Cottam, Taunton and Bridgwater; and the third by Messrs. Hans Price & William Jane, Weston-super-Mare.

Schools: Aylesbury and Wolverton.—New elementary schools are to be erected at Aylesbury and Wolverton for the Bucks County Education Committee, and in a recent competition for the buildings the assessor, Mr. T. W. Cutler, F.R.I.B.A. (nominated through the Royal Institute of British Architects) has made the following awards:—New elementary school, Aylesbury: First premium, motto "Sunlight," Messrs. John Moir Kennard & Harold Kennard; second premium of £25 to be divided jointly—motto "Celtic," Mr. Alfred Hendy; motto "Star," Messrs. John Cash & M. S. Hack. New elementary school, Wolverton: First premium, motto "Sunlight," Messrs. Harrington, Ley, & Kerkham; second premium, motto "Lux," Mr. F. T. Baggalley. New secondary school, Wolverton: Design adjudged first, motto "Sunlight," Messrs. Harrington, Ley, & Kerkham; second design, "Lux," Mr. G. Sedger.

Davies Memorial Laboratories, Aberystwyth.—The design, by Mr. A. W. S. Cross, has been selected in the limited competition for the Davies Memorial Laboratories, at Aberystwyth, for the University College of Wales. The work is to be commenced immediately. The estimated cost is about 20,000*l*.

BOOKS RECEIVED.

Structural and Field Geology. By James Geikie, F.R.S., etc. (Oliver & Boyd, Edinburgh. 12s. 6d.)

Twenty-six Graduated Exercises in Graphic Statics. By T. Alexander, M.Inst.C.E.I., and A. W. Thomson, D.Sc., C.E. (London: Macmillan & Co., Ltd. Price 10s.)

Marine Hotel, Elie, N.B.—The work in connexion with the rebuilding this hotel, which was destroyed by fire about a year ago, has now been completed. The new building is three stories in height, and is lighted throughout by electricity. The contractors were:—Messrs. J. J. & P. M'Lachlan, of Stenhousemuir, builders; James Herbertson & Sons, Glasgow, joiners; Alexander Finnie, of Edinburgh, plasterer; James M. Symington, Glasgow, plumber; John Kelly & Son, Edinburgh, heating and grates; Charles Brand, Dundee, slater; J. B. Bennett & Sons, Glasgow, painters; Wylie & Lochhead, Ltd., electric light installation and furnishings; and David MacGibbon, Glasgow, electric bells and blinds. Mr. Robert Scott was clerk of works, the architects being Messrs. John Burnet & Son, of Glasgow.

Correspondence.

REGISTRATION.

Sir,—The question of registration—by which is meant the enrolment of architects under Act of Parliament, making architecture a "close" profession, similar to that of medicine—has now, after many years of agitation, become so prominent that possibly the readers of the *Builder* may like the principal arguments in its favour to be set before them by one who has for long been identified with the movement. With your concurrence, therefore, I would say a few words with this object, endeavouring to be as brief as possible.

Primarily, the object which we, who are called registrationists by our friends, have in view is educational. It is our belief that any real advance in English architecture is only to be obtained by laying the foundation of thoroughly sound architectural training. To a certain extent and to a certain few there are facilities for such a training at the present time; but the fact that there is no absolute necessity for training before a living can be earned by practising architecture militates most seriously against the effect of the good work now being done.

It is common knowledge to us all that, while a few are now highly trained, the majority of young architects are untrained, or less than half-trained, some for want of opportunity, some (my experience, at least, suggests that these are very few) for want of capacity, and most for want of compulsion. As an indication of my meaning I would point to the large number of students who pass the R.I.B.A. Preliminary examination, the much smaller number who present themselves for the Intermediate, and the very small residue who eventually take the Final. Yet, almost all have sufficient capacity to pass this severe, but not exclusive, test. They do not—they do not even train for it—because they need not; possibly to their own great regret in after years, when they see all the higher class of work being taken by their better-trained contemporaries; certainly to the great detriment of architecture, in which art, perhaps, more than in any other, sound basis training tells.

It is not, therefore, so much the exclusion of the incompetent from the ranks of practising architects which the Registrationists are aiming at—though this would follow as a natural sequence to at least a large extent—as the compulsory training of all up to a satisfactory minimum of attainment, to be decreed from time to time by the responsible leaders of the profession. If it be made compulsory for an architect, before being permitted to practise as such, to pass certain years in

articles and to pass certain test examinations, he will, as a natural consequence, study so as to pass these tests; and if the examiners know their business, as they very soon would learn to do—as the R.I.B.A. examiners have learnt to do—real study and real training would be necessary, and not mere mental cram.

I could go on to other points, but feel that this is already a long letter, and that others may very well be trusted to fill in the gaps which I have left, should you open your columns to a correspondence on this important matter.

G. A. T. MIDDLETON.

NOMINATIONS FOR F.R.I.B.A.

SIR,—I find that many Associates have observed with some concern the large number of men who are being nominated as Fellows by the Institute, and it is worth mention that, in the latest list of thirty-eight, only fourteen have previously qualified as Associate.

Are we to conclude that the other twenty-four candidates (including those who are still young men, and those who are not specially eminent) are being nominated—for what has been thought to be the more honourable membership—*with the approval* of the Institute Council? And if so, are we to conclude that the Presidents of the R.I.B.A. and of the allied societies take this means of publicly retracting all they have previously urged as to the importance of the training and education involved in the qualifying examination?

Or are we to assume that this is being done *against the real wish* of the Council? If so, there are many Associates who have spent time and money in studying and honourably qualifying for membership who will be ready to strengthen their hands. The success of the opposition to a recent Yorkshire nomination of a similar description shows, I believe, that the feeling of the country on the matter is very much stronger than the Council think, and that it is not difficult to keep the standard of membership at a high level.

One thing, at any rate, seems inevitable—we shall have an influx, by the end of the "close season," of several hundreds of Fellows who have never passed any qualifying examination, and the natural conclusion is that the men who, in order to become members, are laboriously studying and working for the Associateship, are fond dreamers and wasters of time, when the same result can be obtained by much less trouble, and even by less guineas. The Fellowship, if it ever had any distinction, can have such no longer.

I should be glad to know, through your columns, if these views are as widely shared through the country as I find they are by Yorkshire Associates and future Associates.

FREDERICK MUSTO.

HOOPED CONCRETE.

SIR,—In your issue of the 8th ult. (page 376) reference is made to the above being now introduced into this country through the medium of a well-known firm carrying on work in this speciality of the building line, and as probably some of your readers interested in the subject may not be aware of the reduction of area made possible by using a "Considère" column, I enclose a rough diagram showing at a glance comparative equivalent areas (column) under compressive stress for various unit values taken for the working load per sq. in. The diagram shown has been partly computed with the help of plotted curves obtained from formulæ as given in C. F. Marsh's standard work on "Reinforced Concrete."

The outside section area shown square with the four corners taken off in moulding same was designed for a column load of 340,000 lb., otherwise 170 American tons of 2,000 lb., or, if reduced to English tons, of 2,240 lb.

$$340{,}000 \times \cdot0004464 = 151{\cdot}78 \text{ tons.}$$
(Reciprocal of 2,240.)

The unit stress on the concrete was taken at 420 lb. per sq. in. This + the stress on the steel reinforcement area shown (viz., 2½ per cent. of the concrete area) divided amongst eight longitudinal rods, required the area as shown; there is no absolute reason why the steel area should not have been divided up amongst four rods, this subdivision resting with the designer, and, as a rule, varies with the different systems employed. The circles marked A are respectively the net area required for a unit stress of 1,000 lb. per sq. in. (inner circle), and the column "finish" bounded by the outer circle on the assumption that the column shall be required to be moulded in any style. This unit stress of 1,000 lb. requires a form of hooping somewhat on the lines of the interior section which depicts a "Considère" column designed for the load mentioned above (340,000 lb.), the area bounded by the spiral hooping being the net area found by formula (C. F. Marsh) for a steady load as given in words, P = 2,000 area of concrete in square inches + 20,000 area of steel (longitudinal rods), P being total column load. This inclusion of a highly-permissible stress on the somewhat small area of the longitudinals effects only a small diminution of the concrete area, which, in smaller diameter columns, is hardly worth consideration unless the steel area is *increased*. The circle B being the column "finish" if the stress allowed above on the steel longitudinals is *neglected* in the calculation for area of section. Lastly, superimposed upon the "Considère" column is a typical steel section compounded of two channels and plates forming the usual box section, this being picked at random from a steel section list to carry 169·2 tons (safe load). Perhaps this last comparison is hardly fair to the steel manufacturer of structural sections, but it does show in a remarkable way what is possible to achieve as regards reduction of concrete area, and the writer knows of only one system that the "Considère" column cannot apparently compete with—that is, the solid steel column of a well-known English firm.

The gist of this letter being comparisons, may the writer mention one more in connexion with the subject? A synopsis of experiments on beams of reinforced concrete lately carried out in the States within the past few years has enabled Mr. T. L. Condron to plot the results of all these tests up to the present time, and thus obtain the following equation and values for n:—

$$M = (n\,P + 55)\,bd^2$$

where M = ultimate bending moment in inch lb., P = percentage of steel, and n = a determined constant which is apparently 450 for *high-elastic limit bars with mechanical bond to the concrete* surrounding same, and 275 for *plain* structural steel bars. This (n P + 55) is what Mr. C. F. Marsh calls the "unit moment of resistance," and if we take for example his value (safe) as given in the table for beams (M. Christophe's value for beams is 285 for 0·8 per cent.), say, for 1 per cent., which is 78·7, and divide the value of (n P + 55) as given above,

$$\frac{330}{78{\cdot}7} = 4{\cdot}19$$

or a factor of safety quite sufficient if good work is insisted upon in actual construction. The above equation is also, when plotted for the values of n in respect to P, found to be a straight line curve in both cases. The value of n = 450 is higher owing to high-elastic limit of the steel, and the evident *benefit* of a mechanical bond as furnished by or through the medium of a *deformed* bar, such as the "Johnson," "Ransome," "Thacher," "De Mann," and others fast coming on the American field of construction pertaining to this subject.

JAMES A. SMYTH.

MAPLE FLOORING.

SIR,—In reply to the letter of "Constant Reader" in your issue for April 15, maple flooring, as used in solid wood-block systems of flooring, is undoubtedly the best wearing of the hard woods. It is, however, a very treacherous wood, and liable to shrinkage or swelling from variation of temperature and humidity of atmosphere.

Special care is necessary in the selection of the wood, the sawing, manufacture of the blocks, and protection after drying and during transit. Open stacking loose laying of the blocks in the rooms to be covered and under the conditions of the temperature the room will be subjected to cannot be over-rated.

The covering of large areas may be advantageously assisted by well-secured screwed curbs or battens every 40 ft. or so, and by laying ordinary bond pattern in lieu of herring-bone. This will avoid those irregular heading joints and give better facility for subsequent repair and maintenance.

The specifications and conditions under which this class of work has to be done are usually very unreasonable, and do not lend themselves to a successful result. The allowance for shrinkage should be a specified item (say, 1-20th in., that is to say, joint between any two blocks), and the terms of maintenance should be taken into consideration by the contractor and the building should be in a fair condition when the order for laying is to be acted upon.

BUILDER'S ASSISTANT.

BODMIN CHURCH INSTITUTE. — Viscountess Clifden recently laid the memorial-stone of the Church Institute, which is being erected in connexion with St. Petrock's Church, Bodmin. Plans were prepared by Mr. Menear Oliver, architect, of Bodmin, and the building will consist of a public hall 50 ft. by 20 ft., with two clubrooms, 24 ft. by 20 ft., for boys and for girls underneath. There will also be retiring-rooms, lobbies, etc. The structure will be of local stone, with granite and terra-cotta brick dressings.

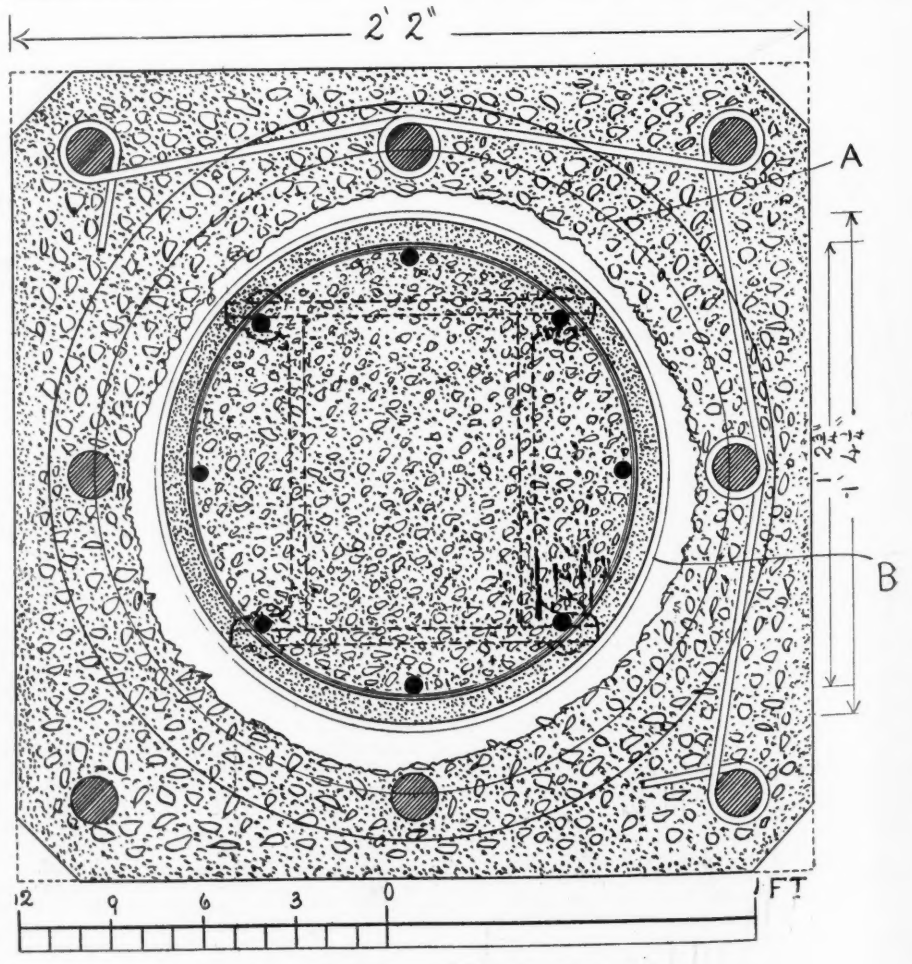


Diagram of Hooped Concrete Construction.

FIG. 126. Section on line C.D. view from below.

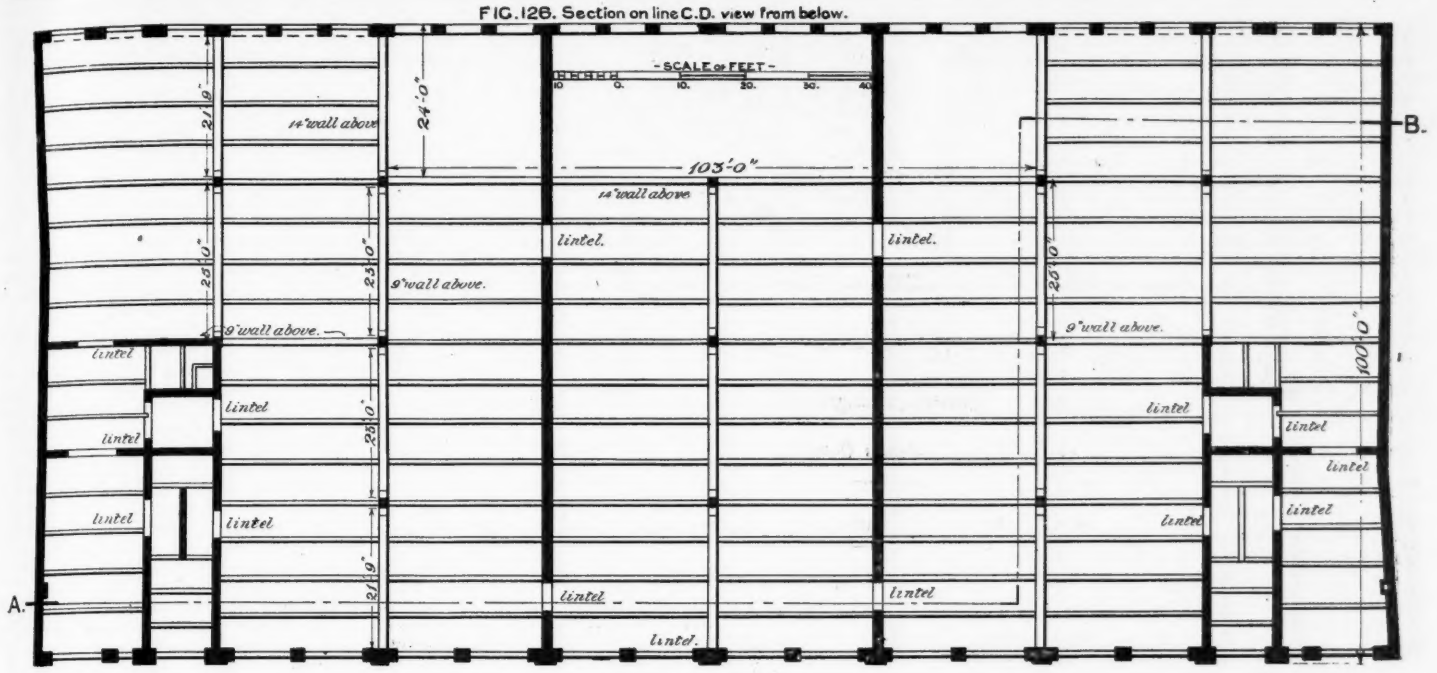


Illustration to Student's Column.

The Student's Column.

TYPICAL STRUCTURES IN CONCRETE-STEEL.—XVIII.

PRINTING WORKS IN SOUTH LONDON.

ONE of the most interesting examples of concrete-steel construction in the metropolis is represented by the extensive premises of which some drawings are reproduced in the present article. Owing to the requirements of the existing Building Act, it was decided to build the walls of ordinary brick masonry, which, although not nearly so strong, is cheaper for a given thickness than concrete-steel. The latter consideration is quite sufficient to prohibit the general application of reinforced concrete to the exterior and other walls of buildings in London, but there is reason for hoping that the restrictive clauses which are now doing so much to hinder the scientific development of constructional work will not reappear in the proposed new Act.

The building forming the subject of the present article measures 210 ft. long by 100 ft. wide, and is about 50 ft. high from the basement floor to the ridge of the roof. It comprises a basement, ground floor, and first floor. All the columns, floors, and the flat portion of the roof are in concrete-steel, built from the drawings and under the superintendence of Mr. L. G. Mouchel, the agent-general for the Hennibique patents in this country.

Fig. 126 is a section on the line CD in Fig. 127, and may be termed a plan of the first floor viewed from below. It will suffice to indicate the general arrangement of the walls, columns, and floor beams. Fig. 127 is a longitudinal section along the line AB in Fig. 126, and Fig. 128 is a transverse section taken from a drawing not reproduced among the present illustrations.

From Fig. 126 the reader may observe that the area of the building is divided into three portions by two main interior walls shaded solid black in the drawing. These are of brick 21 in. thick in the basement, 18 in. thick in the ground story, and 14 in. thick in the upper story. Two door openings in each of these walls on the ground and first floors are spanned by concrete-steel lintels 8 in. deep by 21 in. and 18 in. wide respectively.

At either end of the building the interior partition walls, 14½ in. thick up to the first floor and 9 in. thick above, provide small rooms for use as offices, storerooms, and receiving and despatching rooms. They also form the lift and staircase enclosures. All the openings in these partition walls are protected by concrete-steel lintels 8 in. deep, and of width equal to the thickness of the respective walls. Other lintels are provided in the front and back outer walls on the ground and first floors.

The main floor beams, 16 in. wide by 19 in. deep, run from front to back of the building, except in the case of the two end beams, which commence at the termination of the interior partition walls mentioned above. The extremities of the other beams are carried by the exterior brick walls of the building, and intermediate support is afforded by concrete-steel columns spaced 25 ft. apart centre to centre. The clear span of the beams is about 21 ft. 8 in. between the outer walls and the nearest column and 23 ft. 6 in. between columns, the positions of which are clearly indicated in Fig. 126.

The distance between the main and other partition walls running from front to back of the building is about 50 ft., and each of these distances is divided by one of the main floor beams, which, together with the brick walls, afford support for the secondary floor beams or joists running parallel with the front and back walls. The general dimensions of the joists are 8 in. wide by 15 in. deep, except in the places indicated, where 9-in. brick walls are supported —the dimensions then being increased to 9 in. wide by 15 in. deep—and in one place where an upper wall 14 in. thick is carried, the dimensions in this case being 14 in. wide by 15 in. deep.

The joists are spaced 6 ft. 3 in. apart centre to centre, so that the floor consists of panels, each measuring about 24 ft. 4 in. by 5 ft. 7 in. between supports. These measurements apply only to the larger shops of the works, as in the rooms formed by the brick partitions at each end of the building the joists are spaced somewhat closer together, the joists themselves being 5 in. wide by 12 in. deep.

At points where considerable loads are imposed on the interior brick walls concrete-steel templates are provided for the purpose of distributing the strain over a sufficient area of masonry to prevent the risk of failure by crushing.

By Fig. 127 it may be seen that the central part of the roof is of the Yorkshire, or saw-tooth, variety, while at each end there is a flat roof covering an area of 53 ft. by 100 ft. These portions of the roof are formed by 5-in. by 9-in. concrete-steel beams, spaced to correspond with the secondary floor beams below, and covered with a concrete-steel slab 4 in. thick, over which is a layer of asphalt. Fig. 128 shows a transverse section of the flat roof slab in dotted lines.

The ground story and first story floor slabs are of concrete-steel 5 in. thick, but the basement floor, being laid in solid earth, is of ordinary concrete.

Both the ground and first floors were calculated for a superload of 336 lb. per sq. ft., which involves a load of nearly 614,000 lb. on each column. As the columns are only 16 in. square, this is equivalent to $614{,}000 \div 16^2 = 2{,}400$ lb. per sq. in. of cross section.

Owing to the magnitude of this load, the column construction is one of the most important features of the building under consideration. The general design of the columns is practically the same as that illustrated by drawings already given in Figs. 122, 123, and 124 *ante*. Fig. 128

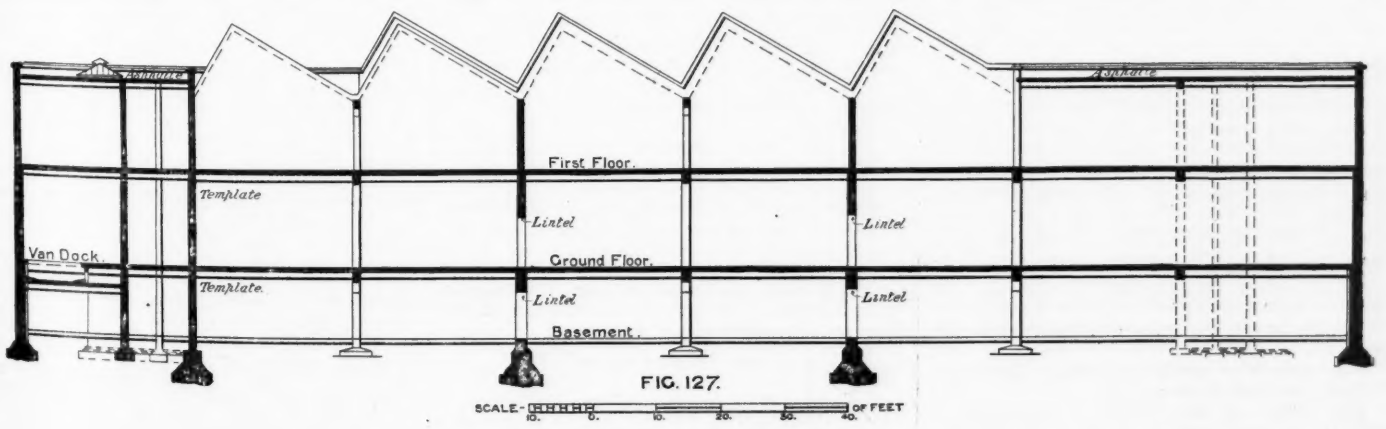


FIG. 127.

Illustration to Student's Column.

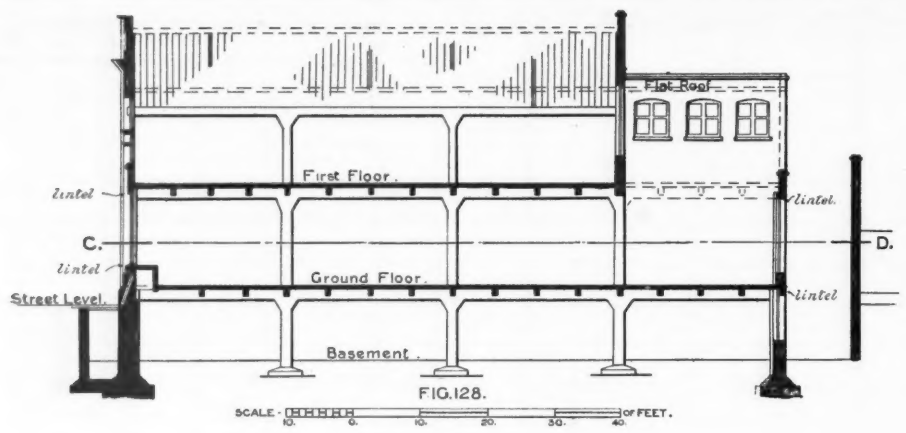


Illustration to Student's Column.

in the present article shows the manner in which these members are extended near the under side of each floor, so as to give ample support and rigidity to the main beams.

The columns measure 11 in. square in the top story of the building and 16 in. square between the first floor and the level of the basement floor. Each column is provided with a concrete-steel base, of the construction described in previous articles, measuring 5 ft. 3 in. square, with a maximum thickness of 15 in. sloping down to the thickness of 9 in. at the edges. These bases distribute the load at the rate of 22,400 lb. per sq. ft. over the masonry foundations upon which they are placed.

It would not be fair to contrast the small cubic dimensions of one of these slender columns with those of an adjacent brick wall carrying the same load, because the wall also serves the purpose of a partition. But we may usefully compare the sectional area of the concrete-steel columns with that of a cast-iron column suitable for the same calculated load.

Allowing 2 in. as the minimum thickness of fire-resisting material, a 12-in. square cast-iron column will give a finished cross-section of 16 in. square, which is the same as that of the lower part of each concrete-steel column in the basement. Let us assume the thickness of metal to be 1·5 in., and the length 10 ft. = 120 in., to agree with the distance between the concrete-steel footing and the underside of the ground-floor beams.

Rankine's rule for the breaking load per sq. in. of a column fixed at both ends is :—

$$P = \frac{f}{1 + \frac{l^2}{cr^2}}$$

As $f = 80{,}000$, $c = 3{,}200$, $l = 120$, we have only to determine the value of r^2, the square of the radius of gyration.

This is :—

$$\frac{b^2 + b_1^2}{12} = \frac{12^2 + 9^2}{12} = 18{\cdot}75$$

Hence for the breaking load per sq. in. we have :—

$$P = \frac{80{,}000}{1 + \frac{120^2}{3{,}200 \times 18{\cdot}75}} = \frac{80{,}000}{1{\cdot}24} = 64{,}520 \text{ lb.}$$

Applying 8 as the factor of safety, we get for the safe load 64,520 ÷ 8 = 8,065 lb. per sq. in. of metal.

The sectional area of metal in the hollow cast-iron column is $12^2 - 9^2 = 63$ sq. in., and the safe load is :—

$$63 \times 8{,}065 = 508{,}095 \text{ lb.}$$

As this calculated load is barely 80 per cent. of that actually carried by the concrete-steel, it would be necessary to increase the thickness of metal to nearly 2 in. for the purpose of insuring the requisite resistance. But even then the cast-iron column would take up no less room after the addition of fire-resisting material than the present type of concrete construction.

Let us next make comparison with a steel column approximately 12 in. square built up of four 6 in. Z-bars and one web plate, taking the thickness of metal at ¾ in.

The value of r^2 for this column is 13·87, and the area of metal 40·56 sq. in.

The values of the constants for Rankine's formula in the case of steel are $f = 48{,}000$, $c = 30{,}000$.

Hence for the breaking load per sq. in. we have:—

$$P = \frac{48{,}000}{1 + \frac{12^2}{30{,}000 \times 13{\cdot}87}} = \frac{48{,}000}{1{\cdot}034} = 46{,}410 \text{ lb.}$$

If we take 4 as the factor of safety for mild steel, the safe load becomes 46,410 ÷ 4 = 11,602·5 lb. per sq. in., and, as the sectional area of metal in the column is 40·56 sq. in., the safe load on the column is :—

$$40{\cdot}56 \times 11{,}602{\cdot}5 = 470{,}597 \text{ lb.}$$

This calculated load is only about 76 per cent. of that actually imposed upon the concrete-steel, but it would be easy to increase the resistance by using Z-bars of greater thickness, or by adopting some other type of built-up steel column. Still, the foregoing computation is sufficient to indicate the advantages of concrete-steel from the standpoints of strength and economy of space.

One other advantage should not be overlooked, namely, the manifest superiority of concrete-steel to any cased form of iron or steel construction in respect of resistance to fire. Comparatively large masses of metal merely sheathed in protective material are manifestly far more liable to injury than thin bars and plates of steel embedded in concrete.

At the front of the printing works two van docks are provided, so that vehicles may be backed directly into the building. One of these is shown at the left hand of Fig. 127. The floor of the dock consists of concrete-steel beams 5 in. wide by 12 in. deep, with a slab of the same material 5 in. thick, the top of the slab being at the same level as the road surface outside. The second dock is situated in a similar position at the other end of the building.

All the secondary beams are designed so that continuous girder action may be developed, and, as may be gathered from Fig. 128, the same feature is still more prominent in the case of the main beams. Attention may be particularly directed to the concrete-steel lintels in the front and back walls of the building. These members measure 9 in. wide by 10 in. deep, with the exception of one a little above the front street level, which is 15 in. wide by 6 in. deep.

In accordance with the practice invariably adopted, the whole of the concrete work is monolithic, and thorough connexion is made between the reinforcement of the various members. The result is that the interior portion of this building is very superior in strength and rigidity to the outer walls, and it is to be regretted that circumstances did not permit the designer to adopt reinforced construction throughout.

OBITUARY.

MR. W. G. SCOTT.—The death is announced at Workington, at the age of 67, of Mr. W. G. Scott, head of the firm of Messrs. W. G. Scott & Co., architects and surveyors, of Workington. He was a member of the Workington Town Council, and served as chairman of the Finance Committee

INSTITUTE, ETC., KIVETON PARK, SHEFFIELD.—The foundation-stone of St. John's Room and Institute was laid at Kiveton Park recently. Mr. T. L. Soar is the architect.

GENERAL BUILDING NEWS.

FREE CHURCH OF WALES CHAPEL, LIVERPOOL.—On the 15th inst. the foundation-stones of the sixth chapel of the Free Church of Wales were laid on a site at the corner of Upper Canning-street and Almond-street. The site, with the houses upon it, have been purchased for 1,175*l.*, and the contract for the erection of a chapel, to accommodate 450, at a cost of about 3,000*l.*, has been entrusted to Messrs. James Tomkinson & Sons, the architect being Mr. T. T. Rees.

WESLEYAN CHURCH, CORFE CASTLE.—On Easter Monday memorial-stones were laid at Corfe Castle of a new Wesleyan church in East-street. It is being built by Mr. T. Shelston, of Swanage, from designs drawn by Mr. T. W. Chinchen, architect, of Crichel. It is to be a Gothic building, of local red brick, with front and facings of dressed Purbeck stone. The church proper will be 50 ft. long and 27 ft. wide, and will accommodate from 200 to 250 people. The school-room at the back of it measures 27 ft. by 25 ft., and, when occasion demands, it can be thrown into the church by the removal of the folding doors between. There will also be three small vestries. The church will be lighted by a large tracery window overlooking the road, and three smaller lead-light windows on either side.

FRIENDS MEETING HOUSE, BRIGFLATTS, YORKSHIRE.—The Friends Meeting House at Brigflatts, near Sedbergh, Yorkshire, which is one of the oldest in the kingdom, dating from 1675, was formally reopened on the 29th ult. after having been closed for repairs. The whole of the roof timbers, being decayed, have been removed and replaced by a framed roof of Baltic fir, and the old stone roofing slabs have been replaced in position. Improvements have also been made to the caretaker's cottage, and to the sanitary arrangements. Mr. Henry T. Fowler, of Barrow-in-Furness, was the architect.

SCHOOL EXTENSIONS, NEWCASTLE.—Alterations are being carried out at the Deaf and Dumb Institution in North-road, Newcastle. The extensions, when completed, will provide for a central hall, surrounded by fifteen classrooms and a dining-room, sufficient to accommodate 170 children. The girls' dormitories allow for 36 sq. ft. per pupil; whilst the dayrooms and school classrooms provide for 20 super. ft. and 27 sq. ft. for each child. The boys' dayroom is being enlarged, and the present dining-room in the girls' wing is to be converted into another dayroom and the present schoolroom into a dormitory. Lavatories, storerooms, and laundry have also been included in the new scheme. Mr. Stephen Piper, of Newcastle, prepared the plans for the improvements, the cost of which will be about 10,000*l.*

THE 1ST HANTS R.G.A. VOLUNTEERS' DRILL HALL, SOUTHAMPTON.—The following are the particulars of the additions and alterations carried out to this building by the Commanding Officer, Lieut.-Col. J. H. Harrison Hogge, from plans prepared by and under the supervision of Messrs. Lemon & Blizard, architects, of Southampton, Salisbury, and Westminster. The addition on the south side of the old premises provides, on the ground floor, a large recreation-room for the men, divided into two portions by a folding partition; the lower end of the room can be used as a billiard-room, as sufficient width is obtained by the construction of a bay projecting into the hall. The first floor contains a large room for the officers of the same size as the men's room below, also divided by a folding partition, one end being reserved for a billiard-room, with a bay as below. To the west end of the drill hall has been added a balcony, 7 ft. wide, at first-floor level, and returning each side for a length of 30 ft., giving access to all the officers' quarters and affording accommodation for band concerts, meetings, etc. The whole of the new premises are fitted with electric light by Messrs. Shalders & Davis, electrical engineers, of Southampton, and the works generally have been carried out by Mr. W. Jupe, builder, of Bitterne Park, Southampton, at a cost of about 1,800*l.*

COUNCIL OFFICES, NEW MALDEN.—Viscount Midleton recently opened the new Council offices, fire station, and other public department at New Malden. The new buildings have been designed by Mr. W. H. Hope, of Hampton Wick, and have been erected by Messrs. Goddard & Sons, of Farnham, at a cost of 5,000*l.* The structure is faced with red bricks, as well as Ancaster stone cornices, etc. In the centre of the building is a cupola which surmounts the place for the illuminated clock which is to come. On the left of the Council offices are the fire station and mortuary, with stables, cart-sheds, and yards at the rear, an intervening space having been left sufficient for a hall to accommodate 500 people. The ground floor of the Council offices includes an entrance hall,

clerk's private and general offices—as well as a muniment-room—and surveyor's private and drawing offices, and lavatories and cloakrooms. The Council chamber is on the first floor. There are also on this floor rooms for the building inspector and rate collector, and a committee-room, as well as lavatory and cloakroom accommodation. The top floor has been set aside for the caretaker's residential quarters. The fire station includes a room sufficient to contain the various equipment, and officers' and men's quarters, cleaning-rooms, and lavatories, as well as a hose tower and look-out.

MISSION HALL, SWANSEA.—The foundation-stone has just been laid of a new mission hall at Terrace-road, Swansea. The hall includes seven classrooms on either side of it. The parish hall and classrooms form the first contract, and this work has been almost completed by Messrs. Lloyd Brothers, contractors, of Swansea, at a cost of 3,000*l*. The church proper will be erected under another contract, and will seat 538 people. The style adopted is Early Decorated. It is estimated that the completed scheme will cost 8,000*l*. Mr. Bruce-Vaughan, Cardiff, is the architect.

CLUB PREMISES, NEW WASHINGTON.—The new premises of the Usworth and District Workmen's Social Club were opened on the 22nd ult. The contractor for the work was Mr. Thomas Robinson, builder, Washington, and Messrs. Nicholson & Dotchin were the architects. The cost was over 3,000*l*.

HOUSING SCHEME, CROYDON.—The workmen's cottages, which have been erected by the Croydon Corporation at the junction of Spring and Long lanes, Woodside, were opened a short time ago. The cottages are all self-contained, and type "A" comprise a living-room, scullery, coals, outside water-closet, and two bedrooms. There is a small garden, with concrete path in front, and a garden at the rear. The living-room is planned with recess for coats, etc., cupboard, with drawers under, and a dresser, with plate rack over. Portable kitcheners have been fixed, and the chimney-pieces, including shelf, are constructed of artificial stone. The scullery has a food cupboard, portable copper, and a strong brown-glazed sink on glazed brick bearers, the walls have a cement dado 5 ft. high, and are limewashed above. The bedrooms are divided by thin solid patent fireproof partitions. Both the bedrooms have cupboards. Type "D" cottages are all planned in a similar manner to the foregoing, and comprise a parlour, living-room, scullery, with bath, portable copper, and sink, outside water-closet, and three bedrooms, and are provided with passages leading to the parlours and living-rooms. The food cupboard in this type is placed in the living-room. In both types the sculleries and water-closets have a flat concrete roof. Over the doors of all the houses there is an artificial stone canopy supported on corbels. The cost was estimated at 23,350*l*., the total rental from the eighty-six houses and one shop being estimated at 1,655*l*. 5s. 6d. The whole scheme was designed and superintended by the Borough Engineer, his architectural assistant, Mr. Eric Hodder, having charge of the work.

PROPOSED WORKHOUSE EXTENSIONS, ECCLESALL.—At a recent meeting of the Ecclesall Guardians, the plans, prepared by Messrs. Hall & Fenton, for the erection of dayrooms, dormitories, etc., on the women's side of the workhouse, at a cost of 5,050*l*., were adopted.

CHURCH INSTITUTE, NORTHAMPTON.—The new premises of the St. James' Church Institute, which have been erected in Spencer Bridge-road, Northampton, were recently opened. Messrs. Stevenson & Dorman were the architects for the work, the builder being Mr. Powell. The cost is about 1,250*l*.

GRAND THEATRE, COLCHESTER.—With reference to a paragraph in our last week's issue stating that this theatre, which was opened during Easter, had been erected from designs prepared by Mr. J. W. Start, of Colchester, we are asked to state that the plans were prepared in the offices of Messrs. Kirk & Kirk, of Westminster, and, soon after the excavations had been completed, Mr. Paul Hoffmann, of Old Broad-street, E.C., was appointed consulting architect on behalf of the parties financially concerned, and the building was completed in accordance with certain alterations and suggestions made by him.

STAINED GLASS AND DECORATION.

ST. MICHAEL'S, BARNES.—Two single-light windows were unveiled in this church on Easter day; one the gift of the school children, and the other of the priest in charge. The subjects represented are "Christ, the Good Shepherd," and "Christ Blessing Children." This completes the series of lights, upwards of thirty, executed in this church by Messrs. Percy Bacon & Brothers.

SANITARY AND ENGINEERING NEWS.

SEWERAGE SCHEME, SOUTHPORT.—In the Mayor's parlour, at the Southport Town Hall, on the 26th ult., an inquiry was held by Mr. A. A. G. Malet, M.Inst.C.E., and Mr. H. Timbrell Bulstrode, M.A., M.D., into an application by the Town Council for power to borrow 35,000*l*. for the purposes of sewage disposal. Mr. J. Ernest Jarratt, the Town Clerk, conducted the case for the Corporation; the Preston Town Council and the Preston Port and Harbour Authority were represented by Mr. Henry Hamer, the Town Clerk, and Mr. James Barron, the Ribble engineer. The Town Clerk stated that at present the sewage of the borough was discharged into the Crossens Channel by works constructed in 1878, supplemented by a small pumping station erected seven years ago. During the last twenty-five years there had been a gradual rise in the level of the foreshore, and the invert of the outlet was now 4 ft. below the level of the channel. Consequently the sewage could not be discharged at the level originally intended, and, at certain states of the tide, the sewage backed up the main sewer. The cost of the pumping station was met out of revenue, but the cost of the land was included in the present application. It was now proposed to construct works capable of dealing with 18,000,000 gallons of sewage per day—nine times the volume of the present dry-weather flow; there would be six pumps (two of them stand-bys), a series of detritus and sedimentation tanks, and fifteen filter beds, and the effluent could then be turned into the channel at all states of the tide, except on the highest tides of the year. Evidence was given by Mr. R. P. Hirst, the Borough Engineer, and Mr. G. Chatterton, engineer, and others.

RAILWAY VIADUCT, FERRYHILL, ABERDEEN.—The widening of Ferryhill railway viaduct, which forms the first section of work preliminary to the extension of the Joint Station, and was entered upon by the Caledonian Railway Company in March, 1903, has now been completed. The viaduct, which is about 412 yds. in length, consists of thirty-nine spans, including the two bridges—at Wellington-road and Millburn-street. The structure, which is built on a south-easterly curve, is faced with the native granite. The body of the ordinary arches consists of five rings of brickwork, including the blue brick facings, while the haunching is of concrete. The works were designed by Mr. D. A. Matheson, Engineer-in-Chief of the Caledonian Railway Company, and the principal contractors were Messrs. Morrison & Mason, Ltd., Glasgow, the sub-contractors for the steelwork being Messrs. Sir William Arrol & Co., Ltd., Dalmarnock Iron Works, Glasgow, and the resident engineer under whose supervision the work was carried out was Mr. W. A. Kemp.

THE GAUNLESS VIADUCT, NEAR BISHOP AUCKLAND.—The rebuilding of the viaduct over the River Gaunless and the Haggerleazes branch railway is now nearing completion. The whole of the work is being carried out by the district engineering staff of the North-Eastern Railway, with the exception of the steelwork, for which Messrs. J. Shewell & Co., Albert Hill, Darlington, are the contractors. The undertaking is under the direction of Mr. C. F. Bengough, North-Eastern Railway District Engineer at Bishop Auckland.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Mr. W. H. Wrightson has entered into partnership with Mr. T. H. Baker, architect and surveyor, of London, Colchester, and Clacton-on-Sea. The style of the firm is "Baker & Wrightson, architects and surveyors, 21, Liverpool-street, E.C., and Clacton-on-Sea."

THE GILMOUR HARDWOOD DOORS.—These are a Canadian invention, and have already been mentioned in our columns in connexion with one of the industrial exhibitions. The core of the framing is built up of a number of small pieces glued together and so arranged as to prevent warping; the surfaces of the core are grooved, the grooves being rectangular, ⅛ in. wide and 1-16 in. deep and ½ in. apart. The hardwood facing is 3-16 in. thick, and is grooved on the back exactly similar to the core, so that the ridges in the one fit into the grooves in the other. Heavy steam-heated rollers are used to roll the hardwood face to the core, so that surplus glue is squeezed out along the grooves and perfect adhesion is secured. The panels are built up of five thicknesses of wood, laid with the grain alternately vertical and horizontal to prevent warping. Only the outermost layers are of hardwood. Solid hardwood mouldings are planted around the panels, and also (in some of the designs) on the rails. For hospitals, a special door is made without panels or projections of any kind and without visible joints; this is an excellent piece of work, and has the appearance of a solid plank, without its disadvantages. The catalogue we have received contains coloured illustrations of doors of different designs, the prices being given in each case. Among the woods used are oak, teak, birch, and mahogany.

OPEN SPACES.—The acquisition, at a cost of 48,000*l*., of the Sanders Estate, of about 24 acres, at Denmark Hill, is now practically assured, the London County Council having agreed to contribute 25,000*l*., whilst contributions and private subscriptions are promised to a total of 23,000*l*. The contributions comprise sums of 10,000*l* from the Camberwell Borough Council, 5,000*l*. from the Lambeth Borough Council, and 2,500*l*. from the Southwark Borough Council; the park is to be vested in the London County Council, who will lay out the ground, and erect the fencing, at a cost of about 5,500*l*.——The Archbishop of Canterbury will continue the arrangement made by his predecessor in the primacy, whereby a portion of the grounds of Lambeth Palace are reserved for the enjoyment of the public.——The extension and completion of the laying-out of Mountsfield Park is being proceeded with by the London County Council at an outlay of 2,115*l*.——Proposals are made for planting portions of the vacant ground or "waste" along the sides of Mile End-road as a boulevard or garden, for which the width of the thoroughfare is well adapted.——The Metropolitan Public Gardens Association have agreed to undertake the laying-out of the proposed recreation ground in Varcoe-road, subject to one-half of the expense being defrayed by the Camberwell Borough Council, and have under consideration a scheme for the preservation, with the co-operation of the Surrey County Council, of Purley Beeches, near Croydon, which it appears could be secured for 5,600*l*.——In terms of an award drawn by Mr. G. Pemberton Leach, an Assistant-Commissioner of the Board of Agriculture, the claim advanced by the Guildford Golf Club to the sole right to play golf and to maintain links on Merrow Downs, near Guildford, is allowed, and the claim is allowed of Lord Onslow, as lord of the manor, to exercise certain rights as to pasturage, estovers, soil, timber, minerals, and so on. The scheme for the regulation of the Downs as an open space was recently promoted by Lord Onslow and the residents, and the Guildford Corporation, the Golf Club, and others agreed to contribute towards the yearly maintenance.——The annual report of the Epping Forest Committee sets forth that steps have been taken to obtain contributions from the local district authorities towards a sum of 2,000*l*. to be spent upon arresting the continued depletion of water in the heronry and perch ponds in Wanstead Park, and that the enlargement, to a total extent of 13 acres, of the Hollow Pond has been effected at a net expenditure of 1,215*l*., which will be recouped by the sale of gravel, sand, and soil.

CHANGES IN CRAIG'S-COURT.—The office of the Royal Almonry has just been removed from No. 6 in the court to Engine-court, St. James's Palace. On the demolition of the Queen's Treasury, Whitehall, illustrated in our last week's number, p. 466, *ante*, the business of the Royal Almonry was transferred to Spring-gardens, and thence, fourteen years ago, to Craig's-court. In the course of June next will be offered for sale the freehold properties consisting of Harrington House, and Nos. 8, 9, 9A, and 10 in the court, together with No. 21, Charing-cross, the whole covering more than 9,000 ft. superficial. Harrington House, No. 4, extends over nearly the entire east side of Craig's-court; it is a large and handsome mansion, belonging to the Dowager Countess of Harrington, but it has been unoccupied during some while past. The house which afterwards became the Census Office was adapted in 1840 for a collection, made at Sir H. De La Beche's instance, of specimens gathered during the progress of the geological survey of the United Kingdom, which formed the nucleus of the Royal Geological Museum.

PUBLIC WORKS IN THE SOUDAN.—The Earl of Cromer, reporting on the administration of the Soudan in 1904, writes:—A sum of £E27,000 was spent during the past year on the construction of civil buildings in the Soudan. During the first few years after the reoccupation of the country a large number of mud-brick buildings had to be hurriedly constructed to accommodate the officials and troops. These buildings were run up under the superintendence of the Egyptian staff of the Public Works Department, which was composed entirely of military officers without any previous technical training. These mud-brick buildings were only of a temporary character. In all districts where there is a heavy rainfall, such as the Blue Nile, Kassala, and the Upper Nile Province, they are being replaced by permanent buildings. There are now twenty-

four stations where permanent building works are in course of construction. Special grants of money have been made for the better housing of officers, officials, and troops in fever-ridden districts throughout the country. Captain Kennedy, R.E., the Director of Public Works, writes:—"In the case of many of the out-stations, such as El-Obeid, Bara, Gallabut, Kassala, Gedaref, etc., the difficulty and expense of constructing permanent buildings is very great. All the building stores, such as doors, windows, girders, etc, have to be transported long distances by camel, and, in many cases, even fuel, wood for burning lime and bricks, has also to be transported. This not only enormously increases the cost of building, but also ties us down very much as regards design, as we are restricted, in the case of girders for roofing, etc., to loads which can be transported by camel. Till wheeled or other mechanical transport is introduced, the cost of conveying heavy stores or machinery to these out-stations is practically prohibitive." With the extension of the railway system, some of the difficulties to which Captain Kennedy here alludes will, it may be hoped, shortly disappear; but some time must yet elapse before any great improvement can take place in the communications with some of the more remote of the outlying stations.

EXPENDITURE ON PUBLIC BUILDINGS IN EGYPT.—The following reference to this subject is made in the Egyptian Blue Book for 1904:—Large sums of money have, of late years, been spent on public buildings in Egypt, but it is to be feared that a considerable time must yet elapse before it can be said that the country is adequately equipped in this respect. It is somewhat singular that this should be the case, for a spendthrift government, such as that which formerly existed in Egypt, generally displays its wastefulness notably in building. This is what Ismaïl Pasha did. He spent enormous sums of money in the construction of huge useless palaces for himself and his family, some of which are now used for public purposes. They are, however, for the most part, so badly built, besides being very incommodious, that the cost of maintaining them in a moderate state of repair is excessive. In many cases, it will be an eventual economy to pull them down and rebuild. That the progress of the country is, in many directions, being retarded by the want of suitable public buildings cannot be doubted, but the want is one which can only be gradually supplied. Apart from the difficulty of providing speedily the very large sums of money required, it is to be observed that close supervision and control, which are essential if proper economy is to be enforced, can only be exercised over a limited amount of work. Nevertheless, the financial freedom of action now acquired by the Egyptian Government, will enable somewhat more rapid progress to be made than heretofore. The grant for buildings made to the public Works Department in 1904 was £E128,000. With this money, good progress was made with several important buildings; notably, the Central Fire Station, and the Sanieh Girls' School at Cairo, were completed. Each of these cost £E24,000. The grant for 1905 has been increased to £E180,000. The funds available for maintenance have also been increased by £E34,000. There is, therefore, every reason to anticipate a great improvement in the direction of keeping Government buildings in a proper state of repair. The practice formerly adopted of stinting maintenance funds, far from being economical, led in the end to high expenditure. In spite of the fact that, since 1891, no less than £E1,600,000 has been spent from the reserve funds on public buildings, the legitimate demands under this head are still very numerous. The Government offices in Cairo are very incommodious. Moreover, they were originally so badly built that new offices have become an almost inevitable necessity. The cost of maintaining the present buildings is excessive. The prisons are still overcrowded, and the provision for lunatics is so inadequate as to necessitate the discharge of many persons who should be under restraint. Another school for secondary education is much required. An improved technical school, to take the place of that now established at Boulac, must certainly be built before long. If industrial education is extended, a school, modelled on that recently built in Cairo, should be erected in every large provincial town. Little or nothing has as yet been done in the way of providing proper accommodation for the many village schools which are dotted all over the country. A school is required for police cadets, and the War Department has urged that more money should be spent to provide suitable barracks for the troops at Alexandria.

AN OLD MANCHESTER CONDUIT.—In the course of excavation of the road in New Brown-street, a relic of the primitive water supply of Manchester was disclosed. It consisted of lengths of tree trunks, hollowed out and fitted together to form a wooden conduit. The joints were formed by the thinning of one end of a trunk so as to fit into the opening of the one immediately succeeding. The pipe bored through the wood is, roughly, about 4 in. in diameter. The conduit is supposed to be 150 or 200 years old. As the point of discovery was the corner of Sugar-lane, it is conjectured that the pipe conveyed water from one of the springs in Spring Gardens to some residence in the neighbourhood of Shudehill. A similar pipe is said to have been found some years ago, and this appeared to have conveyed water along Mosley-street and Princess-street to a house in the vicinity of the present Whitworth-street.—*Manchester Guardian.*

DIRECTORY OF ENGINEERS, IRON AND METAL TRADES.—Kelly's Directory of Engineers, Iron and Metal Trades, and Colliery Proprietors for 1905 (Kelly's Directories, Ltd., 182-4, High Holborn, W.C.) maintains the standard of excellence of previous editions. The work is arranged on the plan of the "Building Trades Directory"—another excellent work issued by the same firm—and it includes the names and addresses of firms and others in England, Scotland, and Wales, and the principal towns of Ireland, the Channel Islands, and Isle of Man in any way connected with the above trades. There are nearly 2,000 pages of information, clearly arranged and printed, and the information sought for can easily be found. The present is the tenth edition of the work, which is published at 30s.

THE BRITISH FIRE PREVENTION COMMITTEE'S SUMMER SESSION.—The British Fire Prevention Committee's testing station will shortly be moved from Bayswater to a site within easier access from the West-end. All the testing chambers to be erected at the new station will be of the larger type recently adopted by the Committee, with provision for dividing them into compartments. Besides the tests already announced, a floor test and a partition test have been applied for on behalf of the National Fire Proofing Company of the United States, and a door test by the Gilmour Door Company of Canada. There are now four floor tests, two partition tests, two door tests, and one wired-glass test in preparation for the Committee's summer session. The official reports on the Autopyrophone Automatic Fire Alarm System, and on the Adamant Company's partition tests will be issued early in May. A publication, dealing with recent testing operations in America, is also in preparation for issue in May. The number of new members who have joined the Committee during the past four months of the current year is sixty-seven.

NORWICH SHIRE HALL EXTENSION SCHEME.—A special meeting of the Norfolk County Council was held recently at the Shire Hall, Norwich, to consider the report of the Shirehouse Extension Committee. Among other things the report stated that the proposed building is to be erected upon the vacant land on the south side of the present Shirehouse, and intending competitors are to assure themselves of the exact dimensions of the site. It is believed that this land forms part of the old castle moat which was filled up to the present level, consequently, there would be a very considerable depth of made ground. The entire cost of the additions is not to exceed 12,000*l*. The whole of the drawings are to be drawn to a scale of 1-16th in. to 1 ft., finished plainly in colour, and with dimensions clearly given. No perspective drawings to be sent in. A deposit of one guinea will be required from each applicant for the conditions, such sum being returned on receipt of a *bonâ-fide* set of drawings. Each competitor must forward wtih his designs a tender from a reliable contractor, undertaking to carry out the works within the amount above specified. As it is possible that at some future time the front portion of the centre block of the present Shirehouse may require to be rebuilt, competitors are requested to note this in planning the proposed extension. The following accommodation would suffice, viz.:—Secretary's private room, 300 sq. ft.; two rooms for clerks and stores, 400 sq. ft. and 200 sq. ft.; assistant-secretary's private room, 300 sq. ft.; clerks' room, 400 sq. ft.; assistant-secretary's private room, 300 sq. ft.; two rooms for clerks and stores, 400 sq. ft. and 250 sq. ft.: total, 650 sq. ft.; accountant's private room, 300 sq. ft.; two rooms for clerks and stores, 400 sq. ft. and 250 sq. ft.: total, 650 sq. ft.; surveyor's office, 300 sq. ft.; assistant-inspectors' office, 300 sq. ft.; committee-room, 500 sq. ft.; three storerooms, 400 sq. ft. each: total, 1,200 sq. ft.; general waiting-room, 250 sq. ft. Total, 6,050 sq. ft. The Earl of Kimberley moved the adoption of the report, and Mr. B. B. Sapwell seconded the motion. Mr. T. Cranmer moved, as an amendment, that the words, "That the entire cost of additional building do not exceed 12,000*l*." be eliminated. Colonel Hyde seconded, and the amendment was carried by a large majority. The report, after some further discussion, was adopted as amended.

BOOTH'S RAIL JOINT.—A new type of joint for tramway rails has been patented by Mr. Booth, of Sheffield, who claims that it constitutes a rail-joint chair and sleeper combined. Instead of the customary fish-plates the inventor uses two pieces of a specially-rolled angle section, the horizontal limb of the L being prolonged and cranked so as to provide for the attachment of a flat plate placed under the bottom of the rail ends to be jointed. The two angle-plates are connected with the rails by six bolts as usual, and with the bottom plate by six rivets on each side. So far as we can see, the chief advantage of the joint is the large bearing surface provided beneath the rail. This will no doubt have the effect of reducing vibration and jolting, and of permitting the rails to be more effectively tilted, as is sometimes necessary on curves. It is said that the combination dispenses with the necessity for sleepers, as similar but shorter chairs may be applied between the joints. The suggestion that the joint permits the use of a "narrower rail flange" is not a good one in view of the fact that the Engineering Standards Committee—with the co-operation of all the leading tramway experts in the Kingdom—have already settled a definite series of standard sections, in which the dimensions of flanges are limited to two sizes only. Fish-plates were standardised at the same time, and, as they are much more convenient for general use and more readily obtainable than this special form of joint, the inventor will have to demonstrate its superiority very conclusively if he hopes to secure the adoption of his device to any considerable extent.

ROYAL MILITARY SCHOOL, CHELSEA.—Upon the completion of the new buildings at Dover, the erection of which will shortly be begun, the present buildings in King's-road, Chelsea, will be vacated by the pupils and staff of the Duke of York's Royal Military School. They were erected in 1801-2 after designs by John Sanders, and it is expected will be altered for conversion into barracks for infantry troops belonging to the London District garrison. The new buildings at Dover will be erected upon a site at the rear of the Castle, and will be planned in separate blocks, with recreation and drill grounds, swiming-bath, gymnasium, etc.

BLOOMSBURY BAPTIST CHAPEL.—A Baptist Central Mission is about to be established in Bloomsbury, with its headquarters in the chapel, which will be adapted for purposes of the sisterhood and the institute. The chapel, standing in what was formerly Charlotte-street, and is now the northern end of Shaftesbury-avenue, was built for Sir Morton Peto from plans and designs made by John Gibson; it has outer walls constructed of white brick, with dressings of Caen stone, and two lofty spires. The edifice is illustrated in the *Builder* of April 15, 1848.

CAPITAL AND LABOUR.

NEWCASTLE BUILDING TRADES DISPUTE.—The strike in the building trade has commenced. On Saturday, the men affected—the plasterers, masons, bricklayers, and labourers—ceased work. The number of the employers who are willing that things should go on as they have been is not definitely known. The plasterers on Saturday received the notices they had sent out to employers whom they had been informed were desirous of continuing the old rules, and the number so received, we were informed, was a good one. Of course, it would be a breach of confidence for the plasterers to divulge the names of the employers who have so signed. The plasterers approximately estimate the number of men that will be out as 150. The district affected is Newcastle, Gosforth, Wallsend, Gateshead, and up to Newburn.—*Newcastle Chronicle.*

EDINBURGH JOINERS' STRIKE.—No change in connexion with the strike among Edinburgh joiners was reported at the meeting of the men on the 1st inst. The non-union men on strike were paid at the rate of 9s. for married men, and 6s. for unmarried men.

GLASGOW TRADES DISPUTES.—A meeting of the members of the Glasgow branch of the United Operative Plumbers' Society of Great Britain was held on the 1st inst. in the Alexandra Assembly Hall, Cowcaddens. About 400 men, all members of the United Society, are stated to be idle, the members of the Scottish Society having agreed to work at the reduced rate. A strike committee was appointed. There is still no prospect of a settlement between the joiners and their employers.

Legal.

CASE UNDER THE LONDON BUILDING ACT, 1894:

FEES FOR TENEMENTS.

ON April 28, at Lambeth Police Court, before Mr. Francis, Messrs. Frampton & Sheffield were summoned by Mr. Ellis Marsland, District Surveyor for the District of Camberwell, for the recovery of fees due in respect of twenty-eight houses erected by the defendants for the Camberwell Borough Council.

The houses were situated in Oglander and Oxenford roads, two of the number were single houses, but the remaining twenty-six were tenement buildings, each building measured under eight squares in area, and two stories in height. The houses contained two tenements, one tenement on the ground floor having an entrance door at the front giving direct access to the tenement, and with a second tenement on the first floor, to which access is obtained by a separate entrance door and a staircase. The entrance doors to the two tenements were side by side, and were within a common porch, recessed about 3 ft. within the main front wall of the building, and under one arch. There were also separate means of approach from each tenement to the yard in the rear, one by a doorway, and the other by an iron staircase. It was not possible to pass from one tenement to the other without passing out of one entrance door into the common porch and in at the other entrance door, or by passing through the yard in the rear. The fee on these buildings, amounting to 3*l.* 10s. each, was assessed on the basis of "fee and a half," it being claimed that they came within the proviso to the third schedule that, in the case of buildings divided into separate sets of chambers or tenements by party-structures, the fee is to be increased by one-half. For the defence it was contended that only a fee on the single scale was due.

Mr. Walter C. Williams, who appeared for the District Surveyor, urged that the buildings came within the proviso to the schedule, and quoted the definitions of a "party-structure," which means a party-wall," and also a partition floor or other structure separating, vertically or horizontally, buildings, stories, or rooms approached by distinct staircases or separate entrances from without." He claimed that the tenements had, in fact, "separate entrances from without," and the circumstance that the two entrances had a porch in common did not affect the issue, as each tenant could lock his own front door and so keep his tenement to himself.

Mr. G. S. Robertson, for the defence, urged that a separate entrance from without must mean from without the building as a whole, and that the existence of the recessed porch therefore precluded these tenements from coming within the proviso; there was no difference between a porch 3 ft. deep and a passage 50 ft. long, or a staircase 50 ft. high. There was only one staircase, not staircases, in each building.

Mr. Francis asked whether it was contended that these were not separate tenements.

Mr. Robertson replied that they have no separate entrance from without, but only a common entrance.

Mr. Francis: You are inviting me to say it is not from without because it is from within the lobby?

Mr. Francis remarked that it was always interesting to have an argument of this sort, especially when the learned counsel who raised it admitted it was a highly technical one, but, in his opinion, the buildings came within the proviso, and the District Surveyor was therefore entitled to the extra half-fee, "separate entrances from without" meant a separate entrance from without each individual tenement, not necessarily from without the building. There would be judgment for 96*l.* 5s., and 2*l.* 7s. costs.

PAINTER'S APPEAL UNDER THE WORKMEN'S COMPENSATION ACT.

THE case of Sharp *v.* Johnson & Co., Ltd., came before the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Mathew and Cozens-Hardy, on the 3rd inst., on the plaintiff's appeal from a decision of the judge of the Greenwich County Court in an arbitration under the Workmen's Compensation Act, 1897.

The facts were these:—The plaintiff, a painter, was employed by the defendants in the work of building some schools at Catford for the London County Council. The time for commencement of work was 6.30 a.m., and each of the workmen engaged were supplied with tickets bearing numbers which had to be put into a pigeon-hole at the office near the entrance to the premises. The plaintiff came from London to Catford by a train which arrived at about 5.50 a.m., and this enabled him to reach the works at about 6.10 a.m. He usually left his ticket at the pigeon-hole and then went to a mess-cabin, erected on the premises, and waited there until the whistle was blowing at 6.30 for work to commence. It was necessary for the workmen to deposit their tickets within three minutes after 6.30. On August 30, 1904, arriving at the works about 6.10 a.m., the plaintiff was proceeding to leave his ticket at the office, and then for the first time saw a hole in the ground about 5 ft. deep between him and the office, the hole having been made for a stop-cock. The night-watchman, seeing the plaintiff stumbling in stepping across the hole, offered to take the ticket and deposit it for him. While handing over the ticket a plank on which the plaintiff was standing slipped from under him, and he fell into the hole and was injured. The County Court judge held that the accident to the plaintiff did not, in the circumstances, arise out of or in the course of his employment, and that he was not entitled to compensation. Hence the present appeal.

At the conclusion of the arguments of counsel, the Master of the Rolls, in giving judgment, after stating the facts, said that the only point the Court had to consider was whether the plaintiff, getting to the premises twenty minutes before the time when work began, the accident did or did not arise out of or in the course of the man's employment. The County Court judge had found that the accident did not arise out of or in the course of the employment. When a judge had drawn a conclusion of fact, of which there was evidence, that Court was bound by his finding. He felt great difficulty in this case as to whether they were not bound by the conclusion of fact arrived at by the learned judge. He (the Master of the Rolls) should not have thought fit to differ from the learned judge if he had found that the accident did arise out of or in the course of the employment. But then came the question whether this Court was bound by the finding of fact of the learned judge? He thought that, when one really criticised what the learned judge had done, that Court was not bound by his finding, because it really rested on misdirection on a point of law, and if the misdirection were eliminated, it was clear that the accident arose out of or in the course of the man's employment. He was of opinion that the proposition of law involved in the County Court judge's finding was that they could not take the employment as commencing until the man actually commenced work on the job. He thought that did involve misdirection. The learned judge was wrong in trying the case by that standard, and this Court was bound to see what were the true facts. It seemed to him that the facts were all one way, and that the plaintiff had got, for the convenience of himself and his masters, to the place of employment at a time when, in ordinary circumstances, it would be unnecessary. Therefore, it seemed to him that, upon the undisputed facts, the accident did occur in the course of the man's employment. He thought, for the reasons he had given, that they might differ from the conclusion of fact of the learned judge. On these grounds he considered that the appeal should be allowed, and judgment entered for the plaintiff for the amount which had been agreed upon in the event of its being decided that the defendants were liable.

The Lords Justices concurred.

Mr. Ruegg, K.C., and Mr. Chester-Jones appeared for the appellant, and Mr. Walter Stewart for the respondents.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

7,758 of 1904.—A. H. BARKER: *Apparatus for Circulating Water in any System of Pipes, Specially Applicable to Heating Apparatus Where Hot Water is Required to be Circulated in a Closed System of Pipes.*

Apparatus for circulating water in any closed system of circulating pipes by means of the pressure of steam or compressed air, consisting of said system pipes, two closed tanks situated at or near the higher part of the system of circulating pipes, provided with a non-return valve, a separate or common outlet or outlet pipe from said closed tanks to said system of circulating pipes, provided with a non-return valve, a source of steam or compressed air and mechanism actuated by a float in one of said closed tanks, whereby the steam or compressed air continuously forces out the water from each tank alternately.

*** All these applications are in the stage in which opposition to the grant of Patents upon them can be made**

7,803 of 1904.—S. TIMOCHOWITSCH: *Method of and Means for Ventilating Rooms, Halls, Railway Carriages, and the like.*

Means for ventilating rooms or the like, consisting in the combination of a chamber or space extending over the entire area of the upper part of the room or ceiling or part thereof, and on its underside, closed by means of perforate material or gauze, or other suitable distributing or filtering medium, air supply wires extending through the walls or ceiling of the structure, and connecting the chamber with the outer air, and air exhaust wires extending through the walls adjacent to the ceiling or through the ceiling, either set of wires or both set of wires being provided or not with driven fans or the like, and regulating valves as circumstances may require.

10,731 of 1904.—THE RICHMOND GAS STOVE AND METER COMPANY, LTD., and W. H. SHERBURN: *Gas Fires.*

A gas fire, comprising a heat radiating back or base, and frets or grids on the surface of same, adapted to be heated by the gases of combustion, wherein the said frets or grids are detachably supported by projections on same fitting, and held in position in holes or apertures in the back or base, over the course or flow of the heating gases.

12,046 of 1904.—R. F. POCHIN and H. S. POCHIN: *Stone-breaking and Ore-crushing Machinery.*

Stone-breaking and ore-crushing machines with vibrating jaws, where the movement is actuated through inclined toggle plates, such plate being suspended by its fixed end to a boss hung upon a stationary horizontal shaft. Upon this shaft, at the place where the boss is hung, is fixed an eccentric, and by means of this eccentric, adjustment can be made and wear can be taken up; further, by this means, variation and alteration can be given and made in the angle or inclination of the toggle plate to give more or less movement to the jaw of the machine.

12,362 of 1904.—H. H. LAKE (Newland, Welling, Laurie): *Means for Adjusting Windows, Fanlights, Skylights, and the Backs of Chairs, Sofas, and the like.*

Means for adjusting the back of a chair or other hinged article, comprising a bar hinged to the top of the chair or other article, the axial line of such hinge being different though parallel to that of the hinge of the back of the chair, a sliding block hinged to the other end of said bar and adapted to work in guides, and means for adjusting the position of said sliding block within said guides.

12,571 of 1904.—H. E. A. SQUIRE and H. A. SQUIRE: *Swing Joints or Movements for Mirrors, Windows, Ventilators, Book Rests, and other Swinging Articles.*

A swing joint or movement for mirrors, windows, ventilators, book rests, and other swinging articles, consisting in the combination of a plate adapted to be fixed to the side of the mirror or other swinging article, a cup or disc-like part adapted to turn on the face of the said plate, a pivot-pin securing the cup or disc-like part and plate together, and provided with a taper head adapted to engage with the stationary part of the movement, and a coiled wire or like spring contained and compressed between said cup or disc and the plate so as to set up the necessary friction to hold in position the swinging article which is fixed to the movement.

12,703 of 1904.—W. R. TAYLOR: *Mould for Forming Bricks, Briquettes, and the like by Hand Labour.*

This invention relates to moulds for forming bricks, briquettes, and the like, consisting in the combination of such a material for the composition of the mould as will reduce the weight to a minimum. Aluminium and many of its alloys possess the required combination of properties of lightness, rigidity, and durability to an extent which is much superior to that of other materials, accordingly the moulds are made of such a substance or substances alone, or encased in with material of organic origin which possesses, as compared with its weight, considerable rigidity, such as celluloid, ebonite, or wood. The mould may be formed, as a casting, plain or with strengthening and stiffening webs, or it may be built up of wrought metal, the parts of which are joined together by riveting, soldering, or welding.

15,099 of 1904.—F. ROYSTON: *Ventilator for the Top of Window Sashes.*

This consists of two pieces of wood or suitable material fixed together at about right angles to one another so as to form a ⌟ shape. The upper side is about one-half the width of the other or downward part. In the downward part holes of any shape are made. The upper part is fixed to the top of the window casing, so that the downward part is

close against the window sash. Then when the window is opened or pulled down to about the width of the downward part, air can pass through the holes before-mentioned. This ⌟ shape form fits between the two sides of the window framing.

14,603 of 1904.—G. A. PARENT: *System of Metal Girder for Structures of Cement, Concrete, or the like.*

A metal girder or beam for structures of cement, concrete, or the like, comprising in combination two longitudinal parallel bars and braces disposed in zig-zag between said bars, straps lapping over the corresponding bars and braces, split-pins or wedges which engage the orifices of the straps and ensure the fixation of the bars and braces, and thin plates of sheet metal each shaped to receive one of the diagonal braces and applied on each side of said braces at the points of intersection, and having projections integral therewith adapted to grip over the edges of each other.

21,944 of 1904.—H. HARPER & CO., LTD., and A. MORGAN: *Manufacture of Certain Kinds of Shelf Brackets and Cistern Brackets.*

A shelf bracket or cistern bracket formed of a curved channel section metal strut and a metal strip, which is bent at right angles to form the back and the top of the bracket, said top and back of the bracket having pierced and raised tongues or ears, which are closed down upon the sides and ends, or upon the ends only of the side flanges of the strut part, thereby securing the strut and the top and bottom parts of the bracket together.

28,729 of 1904.—E. B. WEED: *Treating Wood for Preserving and like purposes.*

The process of treating wood, which consists in subjecting wood to the action of a heated bath of a relatively non-volatile substance having a higher boiling point than some of the natural constituents of wood, then subjecting the wood to the action of a solvent of the natural constituents thereof to be removed, then subjecting the wood to the action of the heated bath of a relatively non-volatile substance having a higher boiling point than the solvent to expel the solvent, and thereafter treating the wood with a preservative or other fluid.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

April 26.—By B. BAILEY & CO.

Bethnal Green.—126 to 140 (even), Brady-st. (s.), f., w.r. 195*l.*	£1,550
2, 4, 6, and 8, Somerford-st., f., w r. 72*l.* 16s.	500
20 to 30 (even), Neath-pl., f., w.r. 85*l.* 16s.	600

By DYER, SON, & HILTON.

Woolwich.—Church-st., f.g.r, 6*l.*, reversion in 4 yrs.	250

By FORTESCUE & BRANSON.

Hammersmith.—Fulham Palace-rd., two freehold building plots	2,575

April 27.—By BATTAM & HEYWOOD.

Wotton-Under-Edge, Gloucester.—"Lisle House" and 1 acre, f., p.	745

By HERRING, SON, & DAW.

New Cross.—42 to 48 (even), and 48A, Pomeroy-st., u.t. 28 yrs., g.r. 12*l.*, w.r. 149*l.* 10s.	790

By C. MANDELL.

Westbourne Park.—38, Kensal-rd. (s.), u.t. 64 yrs., g.r. 8*l.* 10s., w.r. 61*l.* 2s.	310

By RUTTERS'.

Willesden Green.—1, Gowan Lea-parade (s.), u t. 91¾ yrs., g.r. 11*l.* 11s., y.r. 85*l.*	850

By WALTER PARISH (at Erith).

Erith, Kent.—53, Bexley-rd., u.t. 48½ yrs., g.r. 10*l.*, p.	410
Belvedere, Kent.—Bedwell-rd., "Aldine House," f., p.	500

April 28.—By W. B. HALLETT.

Aldersgate.—3, Lauderdale-buildings (warehouse), u.t. 84 yrs., g.r. 250*l.*, y.r. 450*l.*	1,700

By HARMAN BROS.

Hatfield Broad Oak, Essex.—Encl.sure of pasture, 1 a. 2 r 39 p, f.	100
Three enclosures of land, 30 a. 3 r. 9 p, f.	350

By R. TIDEY & SON.

Islington.—5 and 7, Cleveland-rd., u.t. 47 yrs., g.r. 8*l.*, y.r. 92*l.*	825
De Beauvoir Town.—60, Ufton-rd., u.t 15 yrs., g.r. 3*l.*, w.r. 41*l.* 12s.	205
St. Luke's.—37 and 38, Baltic-st., area 1,000 ft., f., w.r. 93*l.* 12s.	1,180

By F. VARLEY & SON.

Finsbury Park.—36, Portland-rd., u.t 53 yrs., g.r. 12*l.* 12s., e.r. 65*l.*	545
Crouch End.—106, Weston-pk., u.t. 94 yrs., g.r. 7*l.* 10s., y.r. 38*l.*	385

By J. M. WELCH.

Hatfield Broad Oak.—"Sparrows Hall Farm," 77 a. 2 r. 21 p., f., y.r. 60*l.*	900

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h for beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.

MEETINGS.

FRIDAY, MAY 5.

Junior Institution of Engineers (Westminster Palace Hotel).—(1) Mr. L. C. Lambert on "The Influence of Depth of Water on Speed of Vessels," 7 p.m.; (2) Mr. James N. Boot on "Condensing Plant," 8 p.m.

SATURDAY, MAY 6.

Edinburgh Architectural Association.—Visit to Niddrie House.

Institute of Sanitary Engineers, Ltd.—Visit to Whitstable.

Northern Architectural Association.—Visit to Armstrong College, Newcastle-on-Tyne.

Incorporated British Institute of Certified Carpenters.—Discussion on "The Metric System," to be opened by Mr. J. D. MacNair (*pro.*), Mr. G. Ayres (*contra.*). 6.15 p.m.

MONDAY, MAY 8.

Surveyors' Institution (Junior Meetings).—Mr. H. Lemmoin on "Public Health Act, 1875 (Sanitary Provisions). A Few Points for Amendment." 7 p.m

Society of Arts (Cantor Lecture).—Mr. Alan S. Cole, C.B., on "Some Aspects of Ancient and Modern Embroidery," II. 8 p.m.

Bristol Society of Architects.—Excursion to Bath Stone Quarries.

THURSDAY, MAY 11.

Royal Institution.—Professor Sir J. Dewar on "Flame," II. 5 p.m.

Society of Arts (Indian Section).—Mr. H. J. Tozer, M.A., on "The Manufactures of Greater Britain, III.—India." 4.30 p.m.

Society of Antiquaries.—8.30 p.m.

Institution of Electrical Engineers (Society of Arts, John-street, Adelphi, W.C.).—Mr. H. Laws Webb on "Telephone Traffic." 8 p.m.

FRIDAY, MAY 12.

Royal Institution.—Professor E. Fox Nichols on "The Pressure Due to Radiation." 9 p.m.

Royal Sanitary Institute.—The Institute Dinner, Prince's Restaurant, Piccadilly. 7 p.m.

SATURDAY, MAY 13.

Northern Architectural Association.—Student's Sketching Club Excursion.

Junior Institution of Engineers.—Visit to the Dorking Water, Gas, and Electricity Works. Train leaves Cannon-street at 1.30 p.m.

Incorporated Association of Municipal and County Engineers—Midland District Meeting to be held at Market Harborough.

TO CORRESPONDENTS.

H. and G. (Too late. Next week).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks	1	10	0	per 1000	alongside, in river.	
Rough Stocks and Grizzles	1	6	6	,,	,,	,,
Facing Stocks	2	2	0	,,	,,	,,
Shippers	2	2	0	,,	,,	,,
Flettons	1	7	0	,,	at railway depôt.	
Red Wire Cuts	1	14	0	,,	,,	,,
Best Fareham Red	3	12	0	,,	,,	,,
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,
Best Blue Pressed Staffordshire	4	2	6	,,	,,	,,
Do. Bullnose	4	7	6	,,	,,	,,
Best Stourbridge Fire Bricks	4	0	0	,,	,,	,,
GLAZED BRICKS.						
Best White and Ivory Glazed Stretchers	12	0	0	,,	,,	,,
Headers	11	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	16	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamferred, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	,,	,,	,,

BRICKS, &c. (*continued*).

	£	s.	d.			
Quoins, Bullnose, and Flats	14	0	0	per 1000	at railway depôt.	
Double Stretchers	15	0	0	,,	,,	,,
Double Headers	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamferred, Squints	14	0	0	,,	,,	,,
Second Quality White and Dipped Salt Glazed	2	0	0	,,	less than best.	

	s.	d.		
Thames and Pit Sand	7	0	per yard,	delivered.
Thames Ballast	5	9	,,	,,
Best Portland Cement	27	0	per ton,	,,
Best Ground Blue Lias Lime	20	0	,,	,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s.	d.		
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.	
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	,,	,,
PORTLAND STONE (20 ft. average)—				
Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2	1	,,	,,
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2	2½	,,	,,

	s.	d.		
Ancaster in blocks	1	11	per ft. cube,	deld. rly. depôt.
Beer ,,	1	6	,,	,,
Greenshill ,,	1	10	,,	,,
Darley Dale in blocks	2	4	,,	,,
Red Corsehill ,,	2	5	,,	,,
CloseburnRedFreestone	2	0	,,	,,
Red Mansfield ,,	2	4	,,	,,
YORK STONE—*Robin Hood Quality.*				
Scappled random blocks	2	10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super.	,,
6 in. rubbed two sides ditto, ditto	2	6	,,	,,
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,
HARD YORK—				
Scappled random blocks	3	0	per ft. cube,	,,
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2	8	per ft. super.	,,
6 in. rubbed two sides ditto	3	0	,,	,,
3 in. sawn two sides (slabs random sizes)	1	2	,,	,,
2 in. self-faced random flags	0	5	,,	,,

	s.	d.		
Hopton Wood (Hard Bed) in blocks	2	0	per ft. cube,	deld. rly. depôt.
,, ,, ,, 6 in. sawn both sides landings	2	7	per ft. super.	deld. rly. depôt.
,, ,, ,, 3 in sawn both sides random slabs	1	0	,,	,,
,, ,, ,, 2 in. do.	0	8½	,,	

SLATES.

in.	in.	£	s.	d.		
20 × 10	best blue Bangor	13	2	6	per 1000 of 1200	at r. d.
20 × 12	,, ,,	13	17	6	,,	,,
20 × 10	first quality ,,	13	0	0	,,	,,
20 × 12	,, ,, ,,	13	15	0	,,	,,
16 × 8	,, ,, ,,	7	5	0	,,	,,
20 × 10	best blue Portmadoc	12	12	6	,,	,,
16 × 8	,, ,,	6	12	6	,,	,,
20 × 10	best Eureka unfading green	15	17	6	,,	,,
20 × 12	,, ,,	18	7	6	,,	,,
18 × 10	,, ,,	13	5	0	,,	,,
16 × 8	,, ,,	10	5	0	,,	,,
20 × 10	permanent green	11	12	6	,,	,,
18 × 10	,, ,,	9	12	6	,,	,,
16 × 8	,, ,,	6	12	6	,,	,,

TILES.

	s.	d.			
Best plain red roofing tiles	42	0	per 1000	at rly.	depôt.
Hip and Valley tiles	3	7	per doz.	,,	,,
Best Brosely tiles	50	0	per 1000	,,	,,
Do. Ornamental tiles	52	6	,,	,,	,,
Hip and Valley tiles	4	0	per doz.	,,	,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,,	,,
Do. Ornamental do	60	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	0	,,	,,	,,
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000	,,	,,
Do. Ornamental do	54	6	,,	,,	,,
Hip tiles	4	1	per doz.	,,	,,
Valley tiles	3	8	,,	,,	,,
Best "Rosemary" brand plain tiles	48	0	per 1000	,,	,,
Best Ornamental tiles	50	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	8	,,	,,	,,
Best "Hartshill" brand plain tiles, sand faced.	50	0	per 1000	,,	,,
Do. pressed	47	6	,,	,,	,,
Do. Ornamental do	50	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	6	,,	,,	,,

WOOD.

BUILDING WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	13 10 0	15 0 0
Deals: best 3 by 9	13 0 0	14 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 0 0	12 0 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less thn best.
Battens: seconds	0 10 0	„ „ „
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	10 0 0
2 in. by 4½ in. and 2 in. by 5 in.	8 10 0	9 10 0
Foreign Sawn Boards—		
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	„
	At per load of 50 ft.	
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 0 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Small timber (6 in. to 8 n.)	3 0 0	3 10 0
Swedish balks	2 10 0	3 0 0
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0
JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in	24 0 0	25 0 0
3 in. by 9 in.	22 0 0	23 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	18 0 0
Second yellow deals, 3 in by 11 in.	18 10 0	20 0 0
„ „ 3 in. by 9 in.	17 10 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0	15 0 0
Battens, 2½ in. and 3 in. by 7 in.	11 0 0	12 0 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.	18 0 0	19 10 0
Battens	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens	11 0 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 0 0	14 0 0
Do. 3 in. by 9 in.	12 10 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg :—		
First white deals, 3 in. by 11 in.	14 10 0	15 10 0
„ „ 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	14 10 0
„ „ 3 in. by 9 in.	12 10 0	13 10 0
„ „ battens	10 0 0	11 0 0
Pitch-pine: deals	16 10 0	20 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes	44 0 0	upwards.
Oddments	32 0 0	„
Seconds, regular sizes	33 0 0	„
Yellow Pine oddments	28 0 0	„
Kauri Pine—Planks, per ft. cube	0 3 6	0 5 0
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 3 0	0 3 6
Small „ „	0 2 6	0 2 9
Wainscot Oak Logs, per ft. cube.	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 9
¾ in. do. do.	0 0 7	—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 9	0 1 0
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 6
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	17 0 0	22 0 0
American Whitewood Planks, per ft. cube	0 4 0	0 5 0
Prepared Flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
1 in. by 7 in. do. do.	0 14 0	0 18 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 12 9	0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, £ s. d.	or delivered Railway Vans, per ton. £ s. d.
Rolled Steel Joists, ordinary sections	6 0 0 ...	6 15 0
Compound Girders, ordinary sections	7 10 0 ...	8 10 0
Steel Compound Stancheons	9 2 6 ...	10 12 6
Angles, Tees and Channels, ordinary sections	7 10 0 ...	8 10 0
Flitch Plates	7 15 0 ...	8 5 0
Cast Iron Columns and Stanchions including ordinary patterns	6 12 6 ...	7 15 0

METALS.

IRON—	Per ton, in London. £ s. d.	£ s. d.
Common Bars	7 0 0 ...	7 10 0
Staffordshire Crown Bars, good merchant quality	7 10 0 ...	8 0 0
Staffordshire "Marked Bars"	9 10 0 ...	—
Mild Steel Bars	8 5 0 ...	8 15 0
Hoop Iron, basis price	8 15 0 ...	9 0 0
„ „ Galvanized	16 10 0 ...	—
("And upwards, according to size and gauge.)		
Sheet Iron, Black—		
Ordinary sizes to 20 g.	9 0 0 ...	—
„ „ 24 g.	10 0 0 ...	—
„ „ 26 g.	11 15 0 ...	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	12 10 0 ...	—
Ordinary sizes to 22 g. and 24 g.	13 0 0 ...	—
„ „ 26 g.	14 0 0 ...	—

METALS (*continued*).

IRON—*continued*.	Per ton, in London. £ s. d.	£ s. d.
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	15 10 0 ...	—
„ „ 22 g. and 24 g.	16 0 0 ...	—
„ „ 26 g.	17 10 0 ...	—
Galvanised Corrugated Sheets—		
Ordinary sizes 6 ft. to 8 ft. 20 g.	12 10 0 ...	—
„ „ 22 g. and 24 g.	13 0 0 ...	—
„ „ 26 g.	13 15 0 ...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11 0 0 ...	—
Best Soft Steel Sheets, 22 g. & 24 g.	12 0 0 ...	—
„ „ „ 26 g.	13 10 0 ...	—
Cut nails, 3 in. to 6 in.	9 0 0 ...	9 10 0
(Under 3 in., usual trade extras.)		

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3lb. and up	15 5 0 ...	—
Pipe in coils	15 15 0 ...	—
Soil pipe	18 5 0 ...	—
Compo pipe	18 5 0 ...	—
ZINC—Sheet—		
Vieille Montagne ...ton	30 15 0 ...	—
Silesian	30 10 0 ...	—
COPPER—		
Strong Sheet...per lb.	0 0 10 ...	—
Thin „ ... „	0 0 11 ...	—
Copper nails ... „	0 0 10 ...	—
BRASS—		
Strong Sheet ... „	0 0 9½ ...	—
Thin „ ... „	0 0 10 ...	—
TIN—English Ingots ... „	0 1 4½ ...	—
SOLDER—Plumbers' ... „	0 0 6½ ...	—
Tinmen's ... „	0 0 8 ...	—
Blowpipe ... „	0 0 9 ...	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¾d. per ft. delivered.
„ fourths	2d. „ „
21 oz. thirds	3¾d. „ „
„ fourths	3d. „ „
26 oz. thirds	4¾d. „ „
„ fourths	3¾d. „ „
32 oz. thirds	5¾d. „ „
„ fourths	5d. „ „
Fluted Sheet, 15 oz.	3¼d. „ „
„ 21 oz.	4¼d. „ „
⅛ Hartley's Rolled Plate	2d. „ „
¼ „ „ „ „	2¼d. „ „
½ „ „ „ „	2½d. „ „

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 1 8
„ „ „ in barrels	„	0 1 9
„ „ „ in drums	„	0 1 11
Boiled „ „ in pipes	„	0 1 10
„ „ „ in barrels	„	0 1 11
„ „ „ in drums	„	0 2 1
Turpentine, in barrels	„	0 3 9
„ in drums	„	0 3 11
Genuine Ground English White Lead	per ton	19 15 0
Red Lead, Dry	„	19 5 0
Best Linseed Oil Putty	per cwt.	0 6 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TERMS OF SUBSCRIPTION.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ABERYSTWYTH.—For erecting a public library, for the Borough Council. Mr. W. G. Paton, architect, 84 and 86, Colmore-row, Birmingham :—
Edwards Bros., Trefechan, Aberyswyth* .. £2,806

AMAN.—For the erection of three additional classrooms, new cloakrooms, etc., and carrying out alterations to Aman Infants' School, Aberaman, for the Aberdare Urban District Council. Messrs. J. Ll. Smith & Davies, architects, 7, Victoria-square, Aberdare :—
J. Jones, Gwawr Cottage, Aberdare* .. £1,520

ANNFIELD PLAIN.—For a corrugated iron chapel to seat 300 :—
T. Johnson, Consett, co. Durham £500
[Complete seats, platform, heating apparatus, gas fittings, foundations, tea-tables, cupboard, 60 ft. by 30 ft.; also a porch and vestry, 18 W.G. corrugated iron sheetings, etc.]

BENTHAM.—For water supply works, for the Settle Rural District Council. Mr. T. A. Foxcroft, Engineer and Surveyor, Town Hall, Settle :—

Section 1.—Pipe Laying.
I. Grisdale, Low Bentham, Yorks* £112 12 3

Section 2.—Pipe Laying.
Tattersall & Earnshaw, Settle, Yorks* .. 296 19 3

Section 3.—Pipe Laying.
Tattersall & Earnshaw, Settle, Yorks* .. 294 11 5

Section 4.—Reservoir.
Cumberland Bros., Bentham, Yorks* .. 312 11 8

BRISTOL.—For erecting St. Silas Sunday-school and Mission Hall. Messrs. Lingen Barker & Son, architects :—

W. Cowlin & Son..	£1,520	A. J. Beaven	£1,399
E. Clark & Sons ..	1,452	C. A. Hayes	1,375
E. Walters & Son .	1,442	R. Wilkins & Sons*	1,369

[All of Bristol.]

BURGESS HILL.—For constructing and making good St. Mary's-road, for the Urban District Council :—

E. H. King	£460	W. Bryant, Burgess Hill*	£435

CHITTLEHAMPTON (Devon).—For 900 ft. of stoneware sewer, for the South Molton Rural District Council. Mr. W. S. Gardner, Surveyor, Chittlehampton :—

H. Berry	£254 10	T. Holland, Chittlehampton*	£97 10

COMPTON (Hants).—For additions to All Saints' Church. Messrs. J. B. Colson (of the firm of Colson, Farrow, & Nisbett) and G. H. Kitchin, joint architects, 45, Jewry-street, Winchester :—

Grace & Son	£3,630	Musselwhite & Sapp	£3,178
Beale	3,379	Wise & Co.	3,170
Stevens & Co.	3,360	Goddard & Son ..	3,094
Fielder & Son	3,335	Jenkins & Son	3,075
Weeks	3,329	Golding & Ansell..	2,938
Green	3,215	Bascomb‡	—
Franklin & Co.....	3,196		

‡ Withdrawn.

CROYDON.—For billiard-room, St. James' Lodge, Addiscombe, Croydon. Mr. H. Ling, architect, 31, Charing-cross, S.W. Quantities supplied :—

Hayward & Son ..	£1,365	Hanscomb & Smith	£1,258
Maides & Harper ..	1,325	Page & Son	1,199
Hollingsworth	1,263	Marriage*	1,145

DILLINGTON (Norfolk).—For the erection of two cottages, for Mr. C. G. Wood. Mr. W. D. Hubbard, architect and surveyor, East Dereham :—

Gunton & Palmer	£430 0 0	G. Took	£369 0 0
G. Brunton ..	385 10 6	H. Mack, East Dereham* ..	345 0 0

DURHAM.—For supplying and laying 2,000 lineal yds. of 3-in. cast-iron water pipes with valves and standpost, etc., between Quarrington Hill and Old Cassop, for the Durham Rural District Council. Mr. G. Gregson, Surveyor to the Council, Durham :—

E. Cattell	£747 16 5	P. Frater	£352 3 9
R. Oliver	561 7 2	J. G. Rutter & Sons	348 12 0
E. Thompson	429 9 0	J. Carrick,	
H. Meredith..	414 1 11	Durham* ..	328 5 0
J. G. Bradley	389 0 0		
J. Laidler & Sons	381 2 0		

DURHAM.—For supplying and delivering at East Hetton Colliery siding 1,410 lineal yds. of 5-in. cast-iron pipes for a new pumping main from East Hetton Colliery to Quarrington Hill, for the Durham Rural District Council. Mr. G. Gregson, Surveyor to the Council, Durham :—

M. C. Hauxwell	£310 0 0	Birtley Iron Co.	£203 5 6
J. Laidler & Sons	254 0 0	J. & R. Ritchie, Ltd., Middlesbrough*	193 17 6
Watson, Gow, & Co.	217 7 6		

EAST DEREHAM (Norfolk).—For alterations and additions to Freemasons' Hall, for the "Sondes" Lodge of Freemasons. Mr. W. D. Hubbard, architect and surveyor, East Dereham :—

W. Emms	£127 6 6	H. Mack.....	£113 0 0
W. Dent	125 18 0	G. Took*	104 13 6
J. Monument..	123 0 0		

[All of East Dereham.]

FEATHERSTONE. — For sewage disposal works, South Featherstone, for the Urban District Council. Messrs. G. & F. W. Hodson, engineers, Loughborough :—
G. Clements, Station-lane, Featherstone .. £9,000

FYLINGDALES.—For the construction of spring collecting works, collecting chamber, 2,750 yds. of 3-in. cast-iron main, with air valves, wash-outs, break pressure tank, and other works in connexion therewith, at Fylingdales, in the county of York, for the Whitby Rural District Council. Messrs. Fairbank & Son, engineers, Lendal-chambers, York :—

E. Cruddas & Son	£1,779 0 0	M. Arundel .	£962 18 0
F. Beauland	1,594 19 6	Hardy & Atkinson ..	961 0 0
J. Pickthall & Son	1,393 4 9	W. Lant	919 2 3
J. Stephenson	1,012 17 7	T. Bell.....	899 9 9
J. H. Wood..	984 6 0	C. Firth, Scarborough*..	877 10 5

GRAVESEND.—For erecting a Wesleyan church and schools, for the Trustees of same. Messrs. W. J. Morley & Son, architects, Craven House, Kingsway, W.C. :—

Gann & Co...	£5,857 0 0	Lawrence & Son	£5,562 19 0
T. Pearce....	5,850 5 0	L. Seagar....	5,341 19 0
F. Miskin, Ltd.	5,849 6 9	A. E. Tong, Gravesend*	5,325 16 2
A. S. Ingleton	5,678 16 0		
J. Wilford ..	5,639 0 0		

[And others varying from £5,892 to £8,200.]

TENDERS.—*Continued on page* 505.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, etc., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be Delivered
*Designs for New Schools, North Reddish	Stockport Education Committee	Not stated	No date.
*Extension of Shire House, Norwich	Norfolk C.C.	100*l.*, 50*l.*, and 25*l.*	do.

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
Premises at Waunllwyd	Ebbw Vale Co-operative Soc., Ltd.	R. Worcester, Architect, 1, Balloon-street, Manchester	May 6
Pitch and Creosote Oil	Manchester Paving, etc., Committee	Chief Clerk, Highways Department, Town Hall, Manchester	do.
Sewering, etc., Works, Openshaw	do.	Paving, etc., Dept. (Surveyor's Office), Town Hall, Manchester	do.
Sewering, etc., Works, C.-on-M.	do.	do.	do.
Drainage, etc., Moston	do.	do.	do.
Drainage, etc., Harpurhey	do.	do.	do.
Box Works, Cornwall-place, Manningham	Williams, Jowett, & Co.	B. Dobson, Architect, 5, Charles-street, Bradford	do.
Maryborough Waterworks Extension	Mountmellick R.D.C.	F. Bergin, Engineer, 38, Westmoreland-street, Dublin	do.
Alterations, etc., to House at Brompton, Northallerton	Mr. H. Yeoman	W. Hargreaves Bourne, Architect, Darlington	do.
Timber Footbridge near Staines Bridge	Staines U.D.C. and Egham R.D.C.	E. J. Barrett, Engineer, Town Hall, Staines	do.
Furniture at Administrative Block, Fir Vale Wkhse.	Sheffield Guardians	H. I. Potter, Architect, 24, Norfolk-row, Sheffield	do.
Boundary Wall, Central Car Depot, Pendleton	Salford Tramways Committee	General Manager, Tramway Offices, 32, Blackfriars-street, Salford	May 8
Painting, etc., Zion Free Methodist Ch., Kingswood	Trustees	At the Chapel	do.
Three Houses in Hough-lane, Bramley	.....	T. Coombs, 85, Hough-lane, Bramley	do.
Alterations to Alexandra Hall, Great Crosby	U.D.C.	Anderson & Crawford, Architects, 36, Dale-street, Liverpool	do.
Painting, etc., District Working Men's Club, Burradon	.....	M. Wardle, Secretary of Club, Burradon, near Newcastle-on-Tyne	do.
Whinstone and Slag	Stockton R.D.C.	W. Burton, Surveyor, Billingham, Stockton-on-Tees	do.
Leading Stone, etc.	do.	do.	do.
Chapel, Cwmgwrach, Glyn-Neath	Welsh Baptists	J. Cook Rees, Architect, Neath	do.
Painting Victoria Park, Handsworth	Handsworth U.D.C.	H. Richardson, Surveyor, Council House, Handsworth, Birmingham	do.
Workmens' Club, Waldridge Fell	.....	J. G. & R. G. Cowe, Architects, Chester-le-Street	do.
Granite, Gravel, and Flints	Uxbridge R.D.C.	E. Birks, District Surveyor, Town Hall, Uxbridge	do.
Repairs of Parish Church of Dyke	.....	Manse of Dyke, near Elgin, N.B.	do.
Sludge Pressing Machinery at Sewage Disposal Works	Guildford Town Council	C. G. Mason, C.E., Tuns Gate, Guildford	do.
Water Supply Works, Watch Hill, Wigton	Wigton R.D.C.	W. Brown, Surveyor, Kildare	do.
Outfall Sewer, etc., Buncrana, Ireland	Inishowen R.D.C.	J. Gordon Hayes, Engineer, Victoria-road, Buncrana	do.
*Road-making Works	Hendon U.D.C	Council's Engineer, Council Offices, Hendon, N.W.	do.
Chapel, Sharrow-lane, Sheffield	Trustees of Methodist N. Connexion	J. C. Brameld, Architect, 8 and 10, George-street, Sheffield	May 9
Schools, Aberdare	Aberdare U.D.C.	T. Roderick, Architect, Clifton-street, Aberdare	do.
Private Street Works, Howard-road, Southampton	Southampton Corporation	Borough Engineer's Office	do.
1,700 yds. of 9-in. and 700 yds. of 10-in. Pipes, etc.	Directors, Poole Waterworks Co.	H. F. J. Barnes, Secretary, Poole	do.
6-in. Sanitary Pipe Sewer, Harworth-place, Bawtry	Blyth and Cuckney R.D.C.	F. Hopkinson, Surveyor, 40, Bridge-street, Worksop	do.
Alterations at Penybank Isolation Hospital, Fochriw	Gelligaer and Rhygos R.D.C.	P. V. Jones, Architect, Hengoed	do.
Drainage Work, Annexeside of Withington Wkhse.	Chorlton Guardians	C. Clegg & Son, Architects, 104, King-street, Manchester	May 10
Rooms at Port Talbot Central School	Glamorgan C.C.	T. M. Franklen, Glamorgan C.C. Offices, Cardiff	do.
Tar-paving, etc., Port Talbot Central School	do.	do.	do.
Free Library, Commercial-street, Morley	Morley Corporation	W. E. Putman, Borough Engineer & Surveyor, Town Hall, Morley	do.
Cart Shed and Stabling for Five Horses, Buttershaw	Buttershaw Industrial Society, Ltd.	J. Drake & Son, Architects, Queensbury	do.
Paving, Portwood Gasworks	Stockport Gas, etc., Committee	Gas Engineer, Portwood, Stockport	do.
Painting Stockton Station	North-Eastern Railway Co.	J. C. Valentine, Northgate Offices, Darlington	do.
Steel Nails	Admiralty	Director of Navy Contracts, Contract Depart., Admiralty, S.W.	do.
Bridge, Woodburn	Larne R.D.C.	County Surveyor, County Courthouse, Belfast	do.
Cutting a Hill	do.	do.	do.
Steel Boiler Plates	East India Railway Co.	C. W. Young, Secretary, Nicholas-lane, London, E.C.	do.
Pavilion, Victoria Park	Warrington Town Hall, etc., Com.	T. Longdin, Borough Surveyor, Warrington	May 11
Alterations and Painting at the Baths Hotel	do.	do.	do.
Motor Generator Rms., Temple Back Electricity Wks.	Bristol Electrical Committee	H. F. Proctor, City Electrical Engineer, Temple Back, Bristol	do.
Market Buildings	Scunthorpe U.D.C.	A. M. Cobban, Engineer, Home-street, Scunthorpe	do
Chapel and Lecture Hall, Gilfach, Pengam	English Calvinistic Methodist	W. Harris, Architect and Surveyor, Gilfach, Pengam	do.
Painting, etc., at Police Office and Cottage	Carlisle Corporation	H. C. Marks, City Engineer, 36, Fisher-street, Carlisle	do.
330 yds. of Main Sewer, Chapeltown-road, Ecclesfield	Wortley R.D.C.	G. E. Beaumont, Sanitary Surveyor, Grenoside, near Sheffield	do.
Sewer, Sandy-lane, Tettenhall, Staffs	U.D.C.	A. M. Manby, Clerk, 100, Darlington-street, Wolverhampton	do.
Sewering, etc., St. Cuthbert's Bldg. Estate, Bedford	Hobson & Martin	R. Lund, Architect and Surveyor, 8, St. Paul's-square, Bedford	May 12
Underground Convenience, Beckenham-road	Penge U.D.C.	H. W. Longdin, Surveyor, Town Hall, Anerley, S.E.	do.
Norwegian Kerb and Block Channelling	do.	do.	do.
Road Metalling	Newmarket U.D.C.	S. J. Ennion, Clerk, Deva-chambers, Newmarket	do.
Recon. Dwlg.-hse., Stevenson Mains, nr. Haddington	.....	J. Hendery, Surveyor, 34, St. Andrew's-square, Edinburgh	do.
Limestone	Tredegar U.D.C.	H. J. C. Shepard, Town Hall, Tredegar	May 13
400 yds. of Kerbing, Ripponden Wood	Loyland U.D.C.	J. Wadsworth, Surveyor, Ripponden	do.
550 yds. of 3-in. Flags, Rochdale-road	do.	do.	do.
Church at Brithdir	Rev. T. Richards	E. A. Johnson, F.R.I.B.A., Abergavenny	do.
Roads and Drains at Argoed, Monmouth	.....	Gustard & Waddington, Tredegar-chambers, Bridge-st., Newport	do.
Electric Power Generators	Paisley Gas Corporation	G. R. Hislof, Engineer, Paisley Gasworks	do.
Electric Conveyors	do.	do.	do.
Condensing Plant at Electric Light Station	Warrington Electricity Committee	F. V. L. Mathias, Boro' Electrical Engineer, Howley, Warrington	do.
Piling & Removal of Plat., Ballast Quay, Hamworthy	Poole Harbour Commissioners	H. F. J. Barnes, Towngate-street, Poole	do.
Lancashire Boiler at Baths, Belper-street	Blackburn Town Hall, etc., Com.	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn	do.
Alterations, etc., 77, Tylacelyn-road, Penygraig	Mr. J. H. Kendrick	Lewis & Morgan, Architects, Dunraven-street, Tonypandy	May 14
Making-up Cecil-road, Hale	Hale U.D.C.	T. Blagburn, Surv., Council Offices, Ashley-road, Hale, Cheshire	May 15
Alterations, etc., Coedpenmaen School	Pontypridd U.D.C.	P. R. A. Willoughby, Surveyor, Pontypridd	do.
Painting, Woodhouse Moor and Ridge	Leeds Corporation	City Engineer's Office, Leeds	do.
Painting, Potternewton Pk. & North-st. Recrea. Ground	do.	do.	do.
Painting, Burley Park and Kirkstall Abbey	do.	do.	do.
Primitive Methodist Church, Churwell	.....	T. A. Buttery & S. B. Birds, Architects, Queen-street, Morley	do.
Iron and Steel during 1905	Bristol Sanitary, etc., Committee	T. H. Yabbicom, City Engineer, 63, Queen-square, Bristol	do.
Two Villas, Villa-road, Donaghadee	.....	T. Houston, Architect, Kingscourt, Wellington-place, Belfast	do.
Road Material	Orsett R.D.C.	F. T. Johnson, Surveyor, 2, Orsett-road, Grays	do.
Road Materials	King's Lynn Corporation	H. J. Weaver, Borough Surveyor, King's Lynn	do.
Villa, Seafield-street, Elgin	.....	R. B. Pratt, Architect, Town and County Bank-buildings, Elgin	do.
Cleansing Main Sewer	Oystermouth U.D.C.	M. Hoskins, Surveyor to Council, Oystermouth	do.
Ladies' Lavatory, Granville Gardens, Dover	Dover Town Council	H. E. Stillgoe, Borough Engineer, Maison Dieu House, Dover	do.
Tar Macadam Carriageway, Peel Moat-road	Heaton Norris U.D.C.	W. Banks, Surveyor to Council, Heaton Moor	do.
*Alterations and Additions to Schools, Knaphill	Surrey Education Committee	Jarvis & Richards, Architects, 36, Victoria-street, S.W.	do.
Malt-barns and Kilns, Killowen Distillery, Coleraine	Brown, Corbett, & Co.	C. C. Doig, Architect, Elgin, N.B.	May 16
Steel Bridges	South Indian Railway Co.	H. W. Notman, 55, Gracechurch-street, E.C.	do.
Scavenging	Bradford Corporation	E. Call, Destructor Works, Hammerton-street, Bradford	do.
Stores	do.	do.	do.
Road Materials	Rushden U.D.C.	W. B. Madin, Engineer and Surveyor, Vestry Hall, Rushden	do.
125,000 Hardwood Sleepers	Crown Agents for the Colonies	Office of the Crown Agents, Whitehall-gardens, London, S.W.	do.
*Disposal of Refuse, etc.	Corporation of London	The Engineer, Guildhall, E.C.	do.
*Asphalte, Wood and Stone Paving Works	do.	do.	do.
*Road-making and Paving Works	Willesden District Council	Council's Engineer, Dyne-road, Kilburn, N.W.	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
Permanent Way Materials, Johore State Railways	Crown Agents for Colonies	Office of Crown Agents, Whitehall-gardens, S.W.	May 17
Sinking a Borehole	Saxmundham U.D.C.	P. F. MacKenzie-Richards, Engr., 53, Victoria-st., Westminster	do.
Farm Steading, Cragganmore, Ballindalloch		C. C. Doig, Architect, Elgin	do.
Painting Ironwork of Shank Bridge	Lasswade and Gala Water Dis. Com.	County Road Surveyor, County Rooms, Edinburgh	do.
Dredging Alexandra Dock, Grimsby	Great Central Railway Co.	Resident Engineer at Docks, Grimsby	May 18
Repairs, Plastering, etc., to Wards, Chartham Asy.	Kent County Lunatic Asylum	W. J. Jennings, Architect, 4, St. Margaret's-street, Canterbury	May 19
*Iron Fencing	Egham R.D.C.	Council's Surveyor, Englefield-green, Surrey	May 20
Concrete Foot Pavements, Elgin		A. A. Turriff, Burgh Surveyor, Elgin	do.
Baths & Washhouses, New Bridge-st. & Gibson-st.	Newcastle-on-Tyne Corporation	City Property Surveyor's Dept., Town Hall, Newcastle-on-Tyne	May 22
Boilers, Tanks, Heating, etc., New Baths	do.		do.
Broken Granite	Ely U.D.C.	W. McKelvie, City Surveyor's Office, Ely (samples)	do.
Electric Light Installation for Outer Basin of Dock	Clyde Navigation Trustees	G. H. Baxter, Engineer, 16, Robertson-street, Glasgow	do.
*Block of Bldgs. at Baddow-rd. Hospl., nr. Chelmsford	Chelmsford Joint Hospital Board	Clerk to the Board, 96, High-street, Chelmsford	do.
Road Work and Plate-Laying for Tramways	London C.C.	Engineer's Department, County Hall, Spring-gardens, S.W.	May 23
*Sinking and Testing Well at Buntingford	Buntingford R.D.C.	J. Chadwick, Engineer, Bletchley, Bucks	do.
9,400 lin. yds. of 9-in. Sewers, Porchester, etc., Estates	Carlton U.D.C.	J. C. Haller, Engineer and Surveyor, Carlton, near Nottingham	May 24
1,600 lin. yds. of 12-in. Sewers, Woodborough-road	do.	do.	do.
520 yds. of 9-in. Sewers, Woodborough-road, etc.	do.	do.	do.
Pumping Machinery	Aldeburgh Corporation	J. C. Gordon, Borough Surveyor, Aldeburgh	do.
Engine House, Rising Main, etc.	do.	do.	do.
*Conveniences at Golder's Hill	London C.C.	Architect's Department, 15, Pall-mall East, S.W.	do.
Storage Reservoir, etc. (Water Contract, No. 6)	Scunthorpe U.D.C.	A. M. Cobban, Engineer, Home-street, Scunthorpe	May 25
Artesian Well and Air-Lift Pumping Plant	Hackney Borough Council	R. Hammond, Engineer, 64, Victoria-street, Westminster, S.W.	do.
Sewage Disposal Works	Burslem Corporation	C. J. Lomax, Engineer, 37, Cross-street, Manchester	May 26
*Branch Library, Lee Bridge-road	Leyton U.D.C.	W. Jacques, Architect, 2, Fen-court, E.C.	May 30
Painter Work at Arley Congregational Chapel, Bristol		A. Harford, Architect, 6 and 7, St. Stephen's-street, Bristol	No date.
Sir Thomas Salt Mem. Adds. to Stafford Gram. Schl.	The Governors	H. T. Sandy, Architect, 22, Greengate, Stafford	do.
Alterations, etc., to Prudhoe National Schools	Duke of Northumberland, K.G.	J. W. Douglas, Architect, 1, St. Nicholas-bldgs, Newcastle-on-Tyne	do.
Sewering, Cecil-avenue, West-lane, Baildon		J. Harper Bakes, Calverley-chambers, Victoria-square, Leeds	do.
Five Shops, Morley-street, Bradford		H. W. Rogerson, Architect and Surveyor, Tyrrel-street, Bradford	do.
Driving a Hard Heading, 430 yds. long		Manager, Ynysfaio Colliery, Treherbert	do.
Alterations to House at Upper Boat, near Treforest		H. Snell, Architect, Windsor Estate Office, Penarth	do.
Ornamental Iron Railings for Royal Gdns., Bangkok		C. R. Carnac, 23, Ashburn-place, S.W.	do.
Compounding Beam Engine at Winwick Pumping Stn.	Warrington Water Committee	J. Deas, Water Engineer, Bank House, Sankey-street, Warrington	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Architectural Assistant	Nottingham Corporation	140*l.* per annum	May 17
*Clerk of Works	Stockport Education Committee	3*l.* 3s. per week	May 20

Those marked with an (*) are advertised in this number. *Competitions*, iv. *Contracts*, iv. vi. viii. x. *Public Appointments*, xx.

TENDERS—*Continued from page* 503.

HENDON.—For internal painting and sundry other works at Hendon Asylum, for the Central London Sick Asylum District:—

H. & E. Lea	£415 0 0	Marchant & Hirst	£305 8 1
W. Gibson & Co.	374 0 0	F. W. Harris & Co.	270 0 0
Warburton & Son	364 7 6	J. S. Fenn	258 2 3
H. Hudgell	357 12 0	R. Metcalfe & Son	257 1 6
C. Dearing & Son	349 0 0	F. R. Biggs, 27, Charles-street, Haymarket, S.W.*	256 16 4½
A. Taylor	348 13 0		
Love & Co.	336 1 6		
Lilley & Sons	330 17 0		
W. H. Swann	322 1 0		
P. J. Doherty	319 0 0		

ILFORD.—For the erection of a new police-station at Ilford. Mr. J. Dixon Butler, Surveyor to the Metropolitan Police, New Scotland Yard, S.W. Quantities by Messrs. Thurgood, Son, & Chidgey, Charing Cross Chambers, Duke-street, Adelphi, W.C.:—

Hammond & Miles	£10,440	Hammond & Son	£9,416
Lathey Bros.	9,628	Dowsing & Davis	9,355
Harris & Wardrop	9,559	F. Willmott	9,170
Lascelles & Co.	9,470	Fairhead & Son	9,125
Grover & Son	9,470	Chessum & Son	9,048
Partridge Bros.	9,470	F. G. Minter	8,609

KNOTTINGLEY.—For additional sewers, Knottingley, for the Urban District Council. Messrs. Garside & Pennington, engineers, Pontefract and Castleford:—

A. Askam	£431 2 0	J. Bentley	£322 8 3
J. B. Stanhope	421 7 0	J. W. Broadhead	293 0 0
Graham & Sons	402 9 5	J. E. Kaye	296 18 2
J. Brunton	367 16 9	W. Thompson & Sons	281 11 0
W. Waddington	358 15 2	F. Rothera	265 1 4
H. Graham	358 0 0	J. Rodgers	263 1 3
G. Spurr	357 5 0	G. Clements, Featherstone*	254 8 2
Greaves & Wheater	334 10 0		
F. & W. Arundel	329 1 0		

[Engineers' estimate, £337.]

KNOTTINGLEY.—For additional sewers, Womersley-road, The Mount, Sunny Bank, and The Island, for the Urban District Council. Messrs. Garside & Pennington, engineers, Pontefract. Quantities by engineers:—

G. Clements, Featherstone..... £254 8 2½

LLANTRISANT.—For 2,300 lineal yds. of 3-in. cast-iron water mains, etc. (waterworks), for the Llantrisant and Llantwit Fadre Rural District Council. Mr. G. S. Morgan, engineer, School-street, Pontyclun. Quantities by engineer:—

T. Taylor	£757 12 6	T. Lewis	£657 10 6
Meredith Bros.	737 8 0	R. Jones, sen.	651 0 9
G. Rutter	713 1 6	Woodward & Co.	646 4 0
J. G. Porter	713 0 0	E. Lewis	640 14 6
E. Powell	712 13 0	Barnes, Chaplin, & Co.	611 0 0
J. E. Evans	711 5 0	W. John & C. West	600 0 7½
R. Jones, jun.	692 10 6	T. Kearsley, Leigh, Lancs.*	548 11 9
J. William	688 16 7		
A. G. Collins	669 17 5		
R. C. Brebner & Co.	668 7 0		

[And ten more tenders. Engineer's estimate, £600.]

LLANTRISANT.—For waterworks (reservoir and filter beds, road, culvert, etc.), for the Llantrisant and Llantwit Fadre Rural District Council. Mr. G. S. Morgan, engineer, School-street, Pontyclun. Quantities by engineer:—

J. E. Evans Cruwys & Hobrough	£16,019 0 0	R. B. Brebner	£13,969 11 11
E. B. Smith-Jones & Son	15,741 11 11	T. Taylor	13,524 9 11
E. Powell	15,156 3 3	R. Jones	12,986 6 10
Callender & Co.	15,140 0 0	G. Rutter	12,790 0 0
Meredith Bros.	14,963 10 8	A. J. Rossiter	12,604 16 9
Public Works Co.	14,367 16 3	Barnes, Chaplin, & Co., Cardiff*	12,109 12 4
	14,007 10 11	B. Firth & Co.	10,704 18 2

[Engineer's estimate, £12,700.]

LONDON.—For external and internal painting works at the Grove Fever Hospital, Tooting, S.W., for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief. Quantities by Mr. L. Jacob, Globe Chambers, 493, New Cross-road, S.E.:—

H. Hann	£8,652 6 9	W. Reason	£3,579 0 0
W. Smith & Sons	6,787 0 0	C. Cruse	3,550 0 0
C. A. Adams	6,421 9 11	A. H. Inns	3,321 14 0
F. Kinnaird	6,295 0 0	H. Bragg & Sons	3,219 0 0
J. Shelbourne & Co.	6,250 0 0	J. S. Fenn	2,990 0 0
E. Triggs	4,609 0 0	H. Kent	2,954 0 0
H. C. Payne	3,997 0 0	E. Wall	2,922 0 0
Higgs & Hill, Ltd.	3,993 0 0	M. McCarthy	2,774 0 0
Wontner & Co., Ltd.	3,873 0 0	E. Proctor & Sons, 326, High-st., Plumstead*	2,700 0 0

LONDON.—For relaying floors in the laundry at the Grove Fever Hospital, Tooting, S.W., for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

F. Kinnaird	£695	C. Cruse	£347
W. Reason	649	T. Pearce	415
W. Smith & Sons	598	Gardner & Hazell	409
H. Hann	545	S. Kind	375
E. Triggs	530	E. Wall, 2, Alice-terrace, Garratt-lane, Tooting, S.W.*	335
Sycamore Works, Ltd.	504		
Atlas Stone Co., Ltd.	440		

LONDON.—For repairing the tarpaving at the South-Western Fever Hospital, Landor-road, Stockwell, S.W., for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

Chittenden & Simmons	£404 0 0	Grounds & Newton, Page Green-road, South Tottenham*	£124 0 0
Cunningham, Forbes, & Co.	220 7 0	D. Daniel, Ltd.	112 12 6
F. G. Sheppard	211 0 0		
Goddard & Co.	139 0 0		
J. Wainwright & Co., Ltd.	138 10 0		

LONDON.—For Shoreditch Town Hall restoration. Mr. R. W. S. Cross, architect, 46, New Bond-street, W.:—

—	Total	Main Tender.	No. 1.	No. 2.
	£	£	£	£
J. Ferguson & Co.	—	21,450	1,188	215
W. Nash	—	20,400	950	220
F. & A. Willmott	—	20,150	999	210
Spencer, Santo, & Co.	—	19,971	954	212
J. Appleby & Sons	—	19,900	970	220
A. E. Symes	—	19,792	1,026	211
Redding & Sons	—	19,460	905	210
Chessum & Sons	—	19,456	975	208
J. H. & R. Roberts	—	19,326	896	206
L. F. Lamplough	—	19,320	1,020	215
Rowley Bros.	—	19,316	930	270
Waring & Gillow, Ltd.	—	19,266	636	241
F. G. Minter	—	19,166	909	200
H. Kent	—	18,967	896	200
Kirk & Randall	—	18,964	987	225
Mattock & Parsons	—	18,832	1,015	219
Martin, Wells, & Co.	—	18,750	1,006	247
Wilkinson Bros.	—	18,691	895	212
Leslie & Co.	—	18,512	873	201
W. Lawrence & Son	19,549	18,479	872	198
E. Lawrence & Sons	19,606	18,400	989	217
H. L. Holloway	19,253	18,100	953	200
C. Gray Hill	19,130	17,995	928	207
Johnson & Co.	18,860	17,900	780	180
B. E. Nightingale	18,741	17,645	902	194
Killby & Gayford*	18,690	17,583	890	217

LOSTWITHIEL.—For erecting a dwelling-house on Polden Farm, for the Corporation. Mr. J. Knight, Borough Surveyor, Lostwithiel:—

F. Stephens	£312 7 4	Quiller & Brown, Lostwithiel*	£275 15 0
J. Rundle	291 6 0		
W. T. Bassett & F. Bassett	284 10 0		

LUTON.—For sewering, paving, etc., Smart-street, for the Town Council. Mr. S. F. L. Fox, C.E.:—

Free & Son	£711	G. Powdrill, Hitchin-road, Luton*	£636
Patent Victoria Stone Co.	672		

MAESYCWMMER.—For construction of roads and surface water drains on the Gelly-Deg-Ishaf estate, for the Gelly-Deg-Ishaf estate. Messrs. I. Jones & T. E. Richards, architects and surveyors, 18, Saint Mary-street, Cardiff, and Pentre:—

D. Richards	£1,045 13 5	R. W. Hunter & Co.	£625 1 2
Vodden & Lee	960 10 0	G. Rutter	614 10 0
F. A. Sheen	948 9 7	J. Jenkins, Maesycwmmer*	600 0 0
F. Ashley	790 0 0		
Barnes, Chaplin, & Co.	789 13 6		
E. & D. Davies	679 14 0		

RUABON.—For repairs to Ruabon Ponkey Council School, for the Denbighshire Education Authority:—

Parry, Bros., & Davies, 8, Broad-street, Rhos, Ruabon* £117 15 0

RUGBY.—For constructing sewers and outfall works at Bilton, for the Rural District Council. Mr. T. W. Willard, Surveyor to Council, Rugby :—
W. T. Denyer, Brinklow, Coventry* £949

ST. BEES.—For new chapel, laboratories, lecture hall, and library, St. Bees School, for the Governors. Mr. J. F. Curwen, F.S.A., architect, Kendal :—

—	Laboratories, etc.	Chapel.	Total.
	£ s. d.	£ s. d.	£ s. d.
Anderson	5,724 0 0	3,006 0 0	8,730 0 0
Bradley	6,207 0 0	3,372 0 0	9,579 0 0
Bragg	4,599 13 2	2,770 7 7	7,370 0 9
Clark & Robinson	6,500 0 0	3,700 0 0	10,200 0 0
Ferguson	4,889 14 7	2,548 3 0	7,437 17 7
Gradwell	5,475 0 0	2,975 0 0	8,450 0 0
Grisenthwaite	6,010 18 10	3,051 13 6	9,062 12 4
Hatch	5,395 0 0	2,875 0 0	8,270 0 0
Laing	5,606 2 10	2,835 12 11	8,441 15 9
Lister	5,162 0 0	2,633 0 0	7,949 0 0
Moorhouse	6,223 14 0	2,845 17 6	9,069 11 6
Pennington, Kendal†	5,533 10 0	2,826 11 0	8,360 1 0
J. Smith	5,821 6 7	2,990 10 0	8,811 16 7
H. Tinnion	6,083 2 0	2,700 4 0	8,783 6 0
J. I. Wilson	4,402 18 1	2,577 5 1	6,980 3 2
J. Young	5,409 19 6	2,855 7 4	8,265 6 10

SCARBOROUGH.—For additions and alterations to Falsgrave School, for the Scarborough Education Committee. Mr. Charles Edeson, architect and surveyor, 25, Huntriss-row, Scarborough :—

Bricklayers : J. Bastiman & Sons, 70, Victoria-road, Scarborough	£524 0 0
Joiners : G. Lancaster, 28, Raleigh-street, Scarborough	246 0 0
Smith and Founders : H. Pickup, Brook-street Iron Works, Scarborough	102 14 8
Plumbers : W. M. Bolder, 40, Franklin-street, Scarborough	63 7 0
Slaters : J. Hardgraves, 27, Aberdeen-walk, Scarborough	90 8 0
Painters : A. Briggs, 53, Aberdeen-walk, Scarborough	17 13 3

[All subject to the approval of the Board of Education.]

SETTLE.—For water supply extension, Austwick, for the Rural District Council. Mr. T. A. Foxcroft, Surveyor, Town Hall, Settle :—
Excavating Trench for Laying and Jointing 1,740 lineal yds. of 3-in. Cast-Iron Water Mains, Fixing Valves, Hydrants, etc.

Tattersall & Earnshaw	£107 12 10	Dudley & Fairclough	£103 7 1
Brassington Bros. & Corney	104 12 4	W. Stayton, Settle, Yorks*	100 8 3
Cumberland Bros.	104 2 4		

SHEFFIELD.—For widening of Hillsbro' Bridge. Mr. C. F. Wike, City Engineer, Sheffield :—
Ash, Son, & Biggin, Sheffield* £2,880

SWAFFHAM.—For additional nurses' quarters at workhouse, for the Guardians. Mr. L. F. Eagleton, architect, King-street, King's Lynn :—

Bell & Son	£325 0	Ellworthy & Co.	£290 0
J. F. Impson	297 15	Tash, Langley, & Co.	286 8
R. Dye	297 0	G. Jeffries, Swaffham‡	267 0
A. Collison	297 0	H. Barnes & Co.	265 0
Banyard & Son	295 0		
H. Hipwell	294 12		

[‡ Accepted with addition of 8l. for wood-block floor.]

TAUNTON.—For infirmary and detached buildings for servants' quarters at Taunton School, for the Governors of the School. Mr. F. W. Roberts, architect, 2, Hammet-street, Taunton. Quantities by the architect :—

Infirmary.

G. Pollard & Co., Ltd.	£995 0 0	T. Manning & Son	£860 0 0
F. Small	949 0 0	J. E. Fursland	851 7 4
A. J. Spiller	918 0 9	J. Chapman, Taunton*	832 19 2
W. Potter	899 0 0		
F. H. Moggridge	887 15 0		

For Servants' Quarters.

E. G. Coles	£827 13 10	J. E. Fursland	£667 15 7
G. Pollard & Co., Ltd.	817 13 5	J. Chapman	643 11 3
F. Small	722 0 0	F. H. Moggridge	643 5 0
A. J. Spiller	697 0 0	T. Manning & Son, Taunton*	640 0 0
W. Potter	680 0 0		

TEWKESBURY.—For erecting an elementary school, for the Education Committee of Gloucester County Council. Mr. M. H. Medland, County Architect, 15, Clarence-street, Gloucester. Quantities by Messrs. Vale & Kingsford, George-street, Gloucester :—

Estcourt & Sons	£3,799 0 0	J. W. Howell	£3,265 0 0
T. J. Williams	3,710 0 0	W. Bowers & Co.	3,237 0 0
W. F. Drew	3,535 5 0	A. J. Colborne	3,180 4 6
E. W. Wilks	3,439 0 0	Collins & Godfrey, Tewkesbury*	2,854 0 0
Draper & Wallington	3,295 10 0		

TREDEGAR JUNCTION.—For the erection of twenty-nine houses at Pontllanfraith and Tredegar Junction, Mon., for the Tredegar Junction No. 3 Building Club. Mr. W. A. Griffiths, architect, Pontllanfraith, Mon. :—

H. Phillips	£6,273 10	H. Rees, Blackwood*	£5,276 10
Passmore & Perkins	5,720 0	E. Williams	5,249 0
Evans & Waters	5,666 0	E. Hughes	5,113 0
W. & D. Thomas	5,350 10		

WIMBLEDON.—For the supply of 18-in. and 24-in. cast-iron pipes, for the Urban District Council. Mr. C. H. Cooper, Engineer and Surveyor, Council Offices, Broadway, Wimbledon :—

D. Stewart & Co.	£269 15 11	D. F. Thomson & Co.	£216 16 0
E. Willshear	263 10 0	Staveley Coal & Iron Co.	215 8 3
J. Oakes & Co.	253 13 6	G. Johnston & Co.	214 8 0
Cochrane & Co.	249 17 6	J. Gibb & Co.	211 8 4
J. Dickson	235 8 6	Halwell Iron Co.	207 16 0
Cochrane & Co.	230 10 8	Stanton Iron Works, near Nottingham*	203 11 0
Sheepbridge Coal & Iron Co.	221 9 10		
Clay Cross Coal Co.	219 1 7		
L. Horsley & Co.	218 18 3		

WOOD GREEN.—For alterations to Alexandra Schools, for the Wood Green Education Committee :—

Rudd & Son	£1,430 0 0	J Groves & Son	£1,194 7 9
J. H. Pearse	1,400 10 8	Mattock & Parsons	1,189 0 0
W. Barrett	1,361 8 0	A. E. Symes	1,177 0 0
H. W. Patrick	1,310 0 0	W. Lawrence & Son	1,164 0 0
W. Flowerdew	1,287 0 0	Johnson & Co.	1,163 0 0
J. Ferguson & Co.	1,285 0 0	W. J. Maddison	1,157 0 0
B. E. Nightingale	1,285 0 0	H. Knight & Son	1,133 0 0
L. F. Lamplough	1,259 0 0	A. Fairhead & Son	1,123 0 0
J. J. Holliday	1,250 0 0	A. G. Crisp	1,114 0 0
Myatt & Upson	1,239 0 7	J. Stewart	1,101 0 0
General Builders, Ltd.	1,227 0 0	Pollard & Brand*	1,093 0 0
Aldridge & Son	1,210 0 0		
H. Kent	1,195 0 0		

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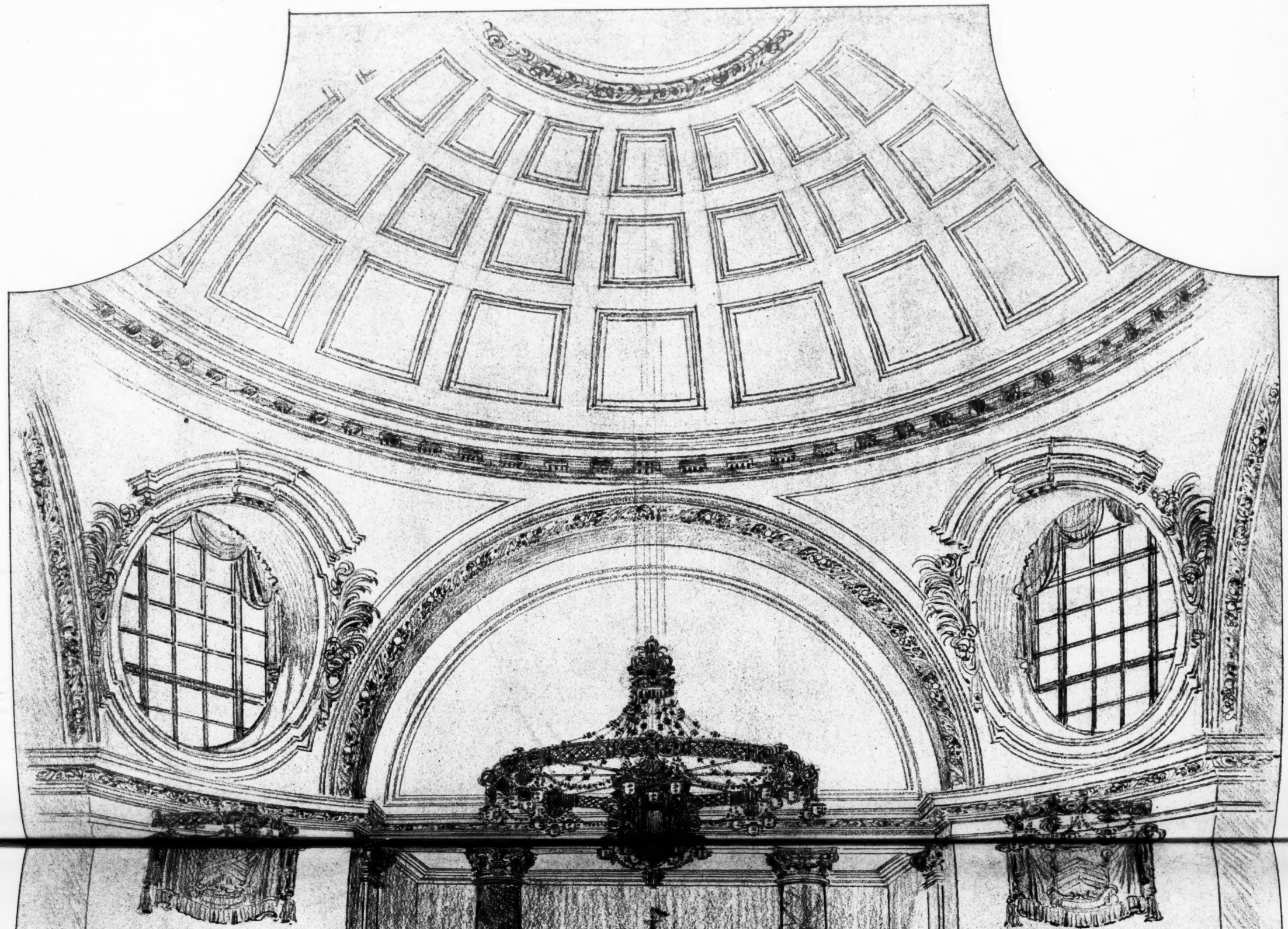

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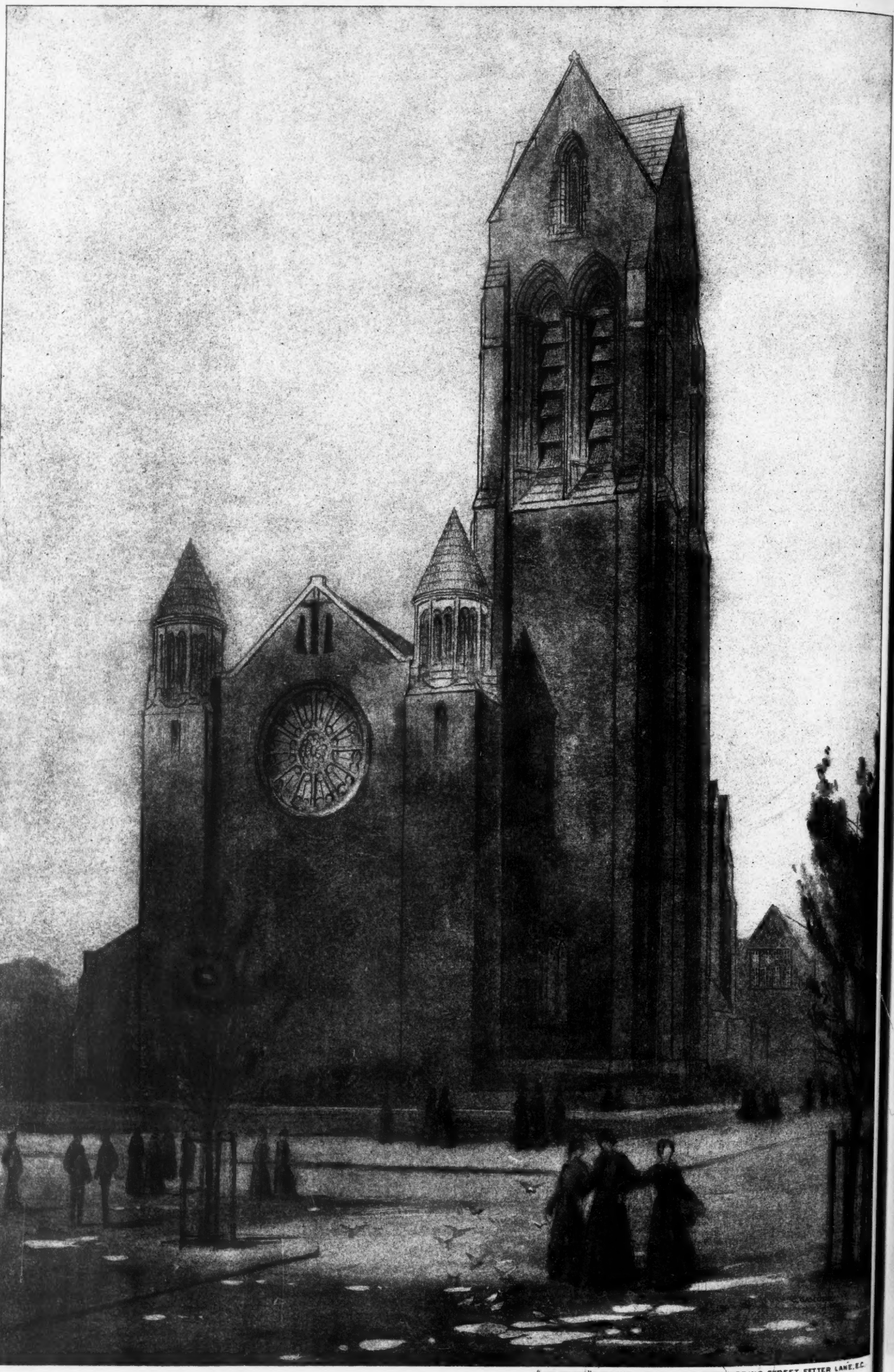
CARDIFF TOWN HALL

Interior of Council Chamber

Interior of Council Chamber

BARCLAY'S
BANK
CHELMSFORD
Arthur Blomfield,
Architect.

PHOTO-LITHO. SPRAGUE & Cº LTº 448, EAST HARDING STREET, FETTER LANE, E.C.



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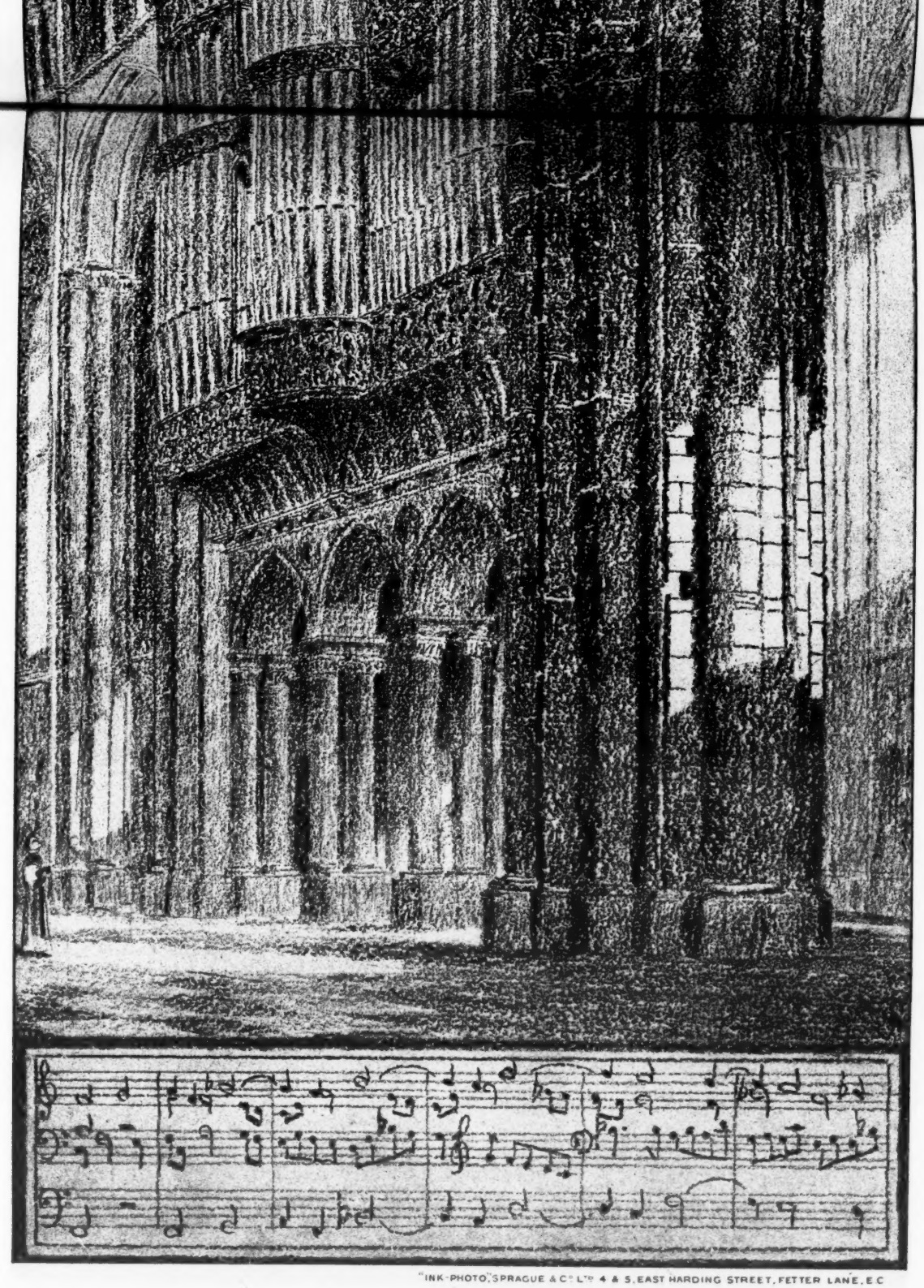
S. ERKENWALD'S CHURCH, SOUTHEND: EXTERIOR.—Mr. W. J. Tapper, A.R.I.B.A., Architect.



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THE OUT-VOLUNTARY.—From a Charcoal Drawing by the Editor.

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